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ABSTRACT

Described is the development and evaluation of a module for teaching special education teacher trainees to determine a pupil's instructional reading level through the use of an informal reading inventory (IRI). Among the topics covered in Part I on developing the instructional module are needs assessment, a review of relevant literature, review and evaluation of existing modules, task and concept analyses used to formulate instructional objectives for the module, the design of criterion-referenced tests and prototype materials, and formative evaluation. Discussed in Part II is the project's summative evaluation phase, in which the module's effectiveness was tested with 62 university students enrolled in three special education methods classes. It was concluded that the module was an effective tool for helping trainees to determine the instructional reading levels of exceptional pupils. Included in the extensive appendixes are materials for the needs assessment study; detailed instructions for utilizing, coding, analyzing, scoring and interpreting an IRI; and a sample achievement test with scoring rules and answer key. (LH)

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DEVELOPMENT AND EVALUATION OF A MODULE TO TRAIN SPECIAL EDUCATION TEACHER TRAINEES TO DETERMINE A PUPIL'S INSTRUCTIONAL READING LEVEL

FINAL REPORT 9.31

DEVELOPMENT AND EVALUATION OF A MODULE TO TRAIN SPECIAL EDUCATION TEACHER TRAINEES TO DETERMINE A PUPIL'S INSTRUCTIONAL READING LEVEL[1]

Idajean Windell

December, 1975

Final Report 9.31

Center for Innovation in Teaching the Handicapped

Indiana University

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FOREWORD

The Tips for Teachers Project is directed toward the development of a series of self-contained, self-instructional modules for training teachers of handicapped children.

The purpose of the present project was to develop a self-instructional teacher training module and, subsequently, to test the effectiveness of that module. The project was performed in two phases. The developmental phase consisted of performing an empirical needs assessment to identify a valid teaching skill to be taught through the module; performing a skills analysis to identify essential skills elements; and designing instruction based on the skills analyses. The purpose of the module is to train special education teachers to determine the instructional reading level of exceptional children.

In the evaluative phase of this project, the effectiveness of the module was tested. The experimental sample was composed of sixty-two students enrolled in three special education methods classes offered through Indiana University. Trainees within each of the classrooms were randomly assigned to either an experimental or a control group.

Analyses confirmed all of the hypotheses relative to the experimental effects of the module. A comparison of the mean test scores for the experimental and the control group at the end of the first week revealed that experimental subjects received a significantly higher mean test score. When the treatment was "crossed over" (second week) and administered to the control group, a comparison of the mean posttreatment test scores for the experimental and control groups revealed that the first week performance differences between the groups had been erased and the groups were approximately equal. Further, comparison of the control group's pre and posttreatment test scores confirmed a significant increment in the groups' mean posttreatment test score. Finally, the delayed posttreatment test administered to the experimental group one week after treatment did not prove to be significantly different from the posttreatment measure which was administered to that group directly after treatment. Since there were no significant differences between the two tests, it can be concluded that the effect of the module was maintained.

From these results it was concluded that the new module produces reliable changes in trainees' knowledge and skill in the use of techniques for determining the instructional reading level of exceptional pupils.

Melvyn I. Semmel

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CHAPTER I

INTRODUCTION

This project involved the development and evaluation of an instructional module to assist special education teachers in acquiring the ability to informally assess an exceptional child's instructional reading level. The report is organized in accord with the instructional development model recently described by Thiagarajan, D. Semmel and M. Semmel (1974). The project is reported in two phases: Part I describes the processes and outcomes relevant to the development of the module. Part II describes the procedures and results of the evaluation of the module.

Background of the Problem

Recently, there has been considerable criticism of the schools for failing to provide an adequate education for all students (Overholt & Martin, 1973). As a result, the schools are being held accountable for the services they render and are being required to demonstrate the effectiveness of these services (Gall, 1973; Licata & Masla, 1973). In an effort to improve educational services, major attention is being directed to the quality of teaching.

Teacher education research, training programs, and certification requirements all evidence a growing emphasis on competent teaching performance. The interest is focused on the actual process or act of teaching. Hyman (1968) states that, "The shift has been from studying teaching effectiveness and teacher personality to analyzing the teaching process itself, with the hope that this approach will yield clues to what constitutes effectiveness [1968, p. 2]."

In response to accountability demands and the emphasis on teacher performance, many teacher training programs and certification agencies are initiating competency or performance-based teaching standards (Elam, 1971; Educational Technology, 1972; Licata & Masla, 1973; Sybouts, 1973; Thiagarajan, et al. 1974). Competency-based performance standards require that teaching behaviors be specified and minimum performance standards be established. Teacher effectiveness is then measured against these performance standards (Getz, Kennedy, Pierce, Cliff, & Chesbro, 1973; Ward, 1973).

The trend toward adopting performance-based standards has caused training programs to institute a reevaluation of their curricula. They can no longer simply offer a list of courses and assume that when a trainee successfully completes these courses he or she has acquired a set of teaching skills.

In their reevaluation efforts, teacher training agencies need to critically appraise two aspects of their programs. First, careful consideration should be given to the value of the knowledge and skills to be included; and, second, viable alternatives to the manner in which the knowledge and skills are presented must be found. While making their appraisals, agencies need to be cognizant that the learning resulting from their program should be evidenced through measurable trainee performance.

The teacher training literature suggests feasible and effective alternatives to present training methods. Peck and Tucker (1971) document numerous studies which demonstrate successful teacher training efforts. Interestingly, the efforts often incorporate one or more overlapping elements. The authors note the emergence of a "systematic" approach to teacher education. They state:

> "A systems approach to teacher education, often called instructional design substantially improves its effectiveness. There are a number of studies illustrating that this works equally well to induce desirable teaching behavior in cognitive and affective respects [Peck & Tucker, 1971, p. 8].

Elements which the systems approach incorporates are: (a) trainees are expected to teach to a behaviorally defined criterion; (b) training is carefully planned and executed with the express purpose of helping the trainees meet the behavioral objectives; and (c) in most instances trainees practice the specified behaviors and receive feedback on their performance. A last, but very integral, element in the systems approach is the final measure of a trainee's performance. Behaviorally defined objectives serve as both guides to learning and as built-in behavioral measures of trainees' final performance.

Thiagarajan, D. Semmel and M. Semmel, (1974), propose that an instructional development format be used by teacher trainers concerned with preparing teachers of exceptional children. A systematic instructional development (ID) approach encompasses those elements which Peck and Tucker found to exist in successful training efforts while affording a guide to help in accomplishing them. Instructional development analyzes the characteristics of the learner, the concepts to be learned, and the skills to be acquired.

Use of the information gleaned from the analyses assists in the selection of appropriate teaching/learning strategies. In keeping with present educational needs, ID expresses its goals in behavioral terms which then serve as performance-based measures of the extent to which skills have been mastered. Assuming the validity of the knowledge or skills to be taught, systematic ID offers a viable alternative to traditional teaching methods (Thiagarajan, et al., 1973). Thus, it is proposed that adopting a systematic ID approach in the preparation of teachers of exceptional children would aid teacher training agencies in accomplishing the following: (a) delineating the skills and knowledge to be taught; (b) considering assessable alternative modes of presentation; (c) choosing an instructional format based on the characteristics of the learner, concept, and skills (task) analysis; and (d) constructing behaviorally defined performance measures to assess learning.

Purposes of the Project

The primary purposes of this project were to: (a) develop an instructional module of approximately three to five hours duration; and (b) demonstrate the module's effectiveness. The module was used to train special education teacher trainees to determine the instructional reading level of an exceptional child through the use of an informal assessment tool. Specifically, this procedure was to be carried out through the use of an informal reading inventory (IRI) which treated reading as an outgrowth of the language process. The self-instructional module was intended to serve as one component of a training program. Audiotapes of the reading performance of educable mentally retarded (EMR) children were used to supplement the written portion of the module. The tapes allowed trainees to practice coding and recording the reading performance of the type of children they would be teaching.

The author used the ID format and activities sequence outlined by Instructional Development for Training Teachers of Exceptional Children: A Sourcebook. (Thiagarajan, D. Semmel, & M. Semmel, 1974). The format describes four distinct stages:

1. Defining Instructional Requirements (Subsystems 1-8);
2. Designing Prototype Materials (Subsystem 9);
3. Development of Instructional Materials (Subsystems 10, 11);
4. Dissemination of Instructional Materials (Subsystem 12).

Figure 1 presents a flow chart illustrating the stages and their subsystems.

The subsequent section of this report (Part I) deals with the developmental phase of the project. Chapter II, which incorporates the needs analysis study, a review of relevant literature, and a review and evaluation of existing modules, follows the present chapter.

Flow Chart of Instructional Development Stages

(Thiagarajan, D. Semmel, & M. Semmel, 1974)

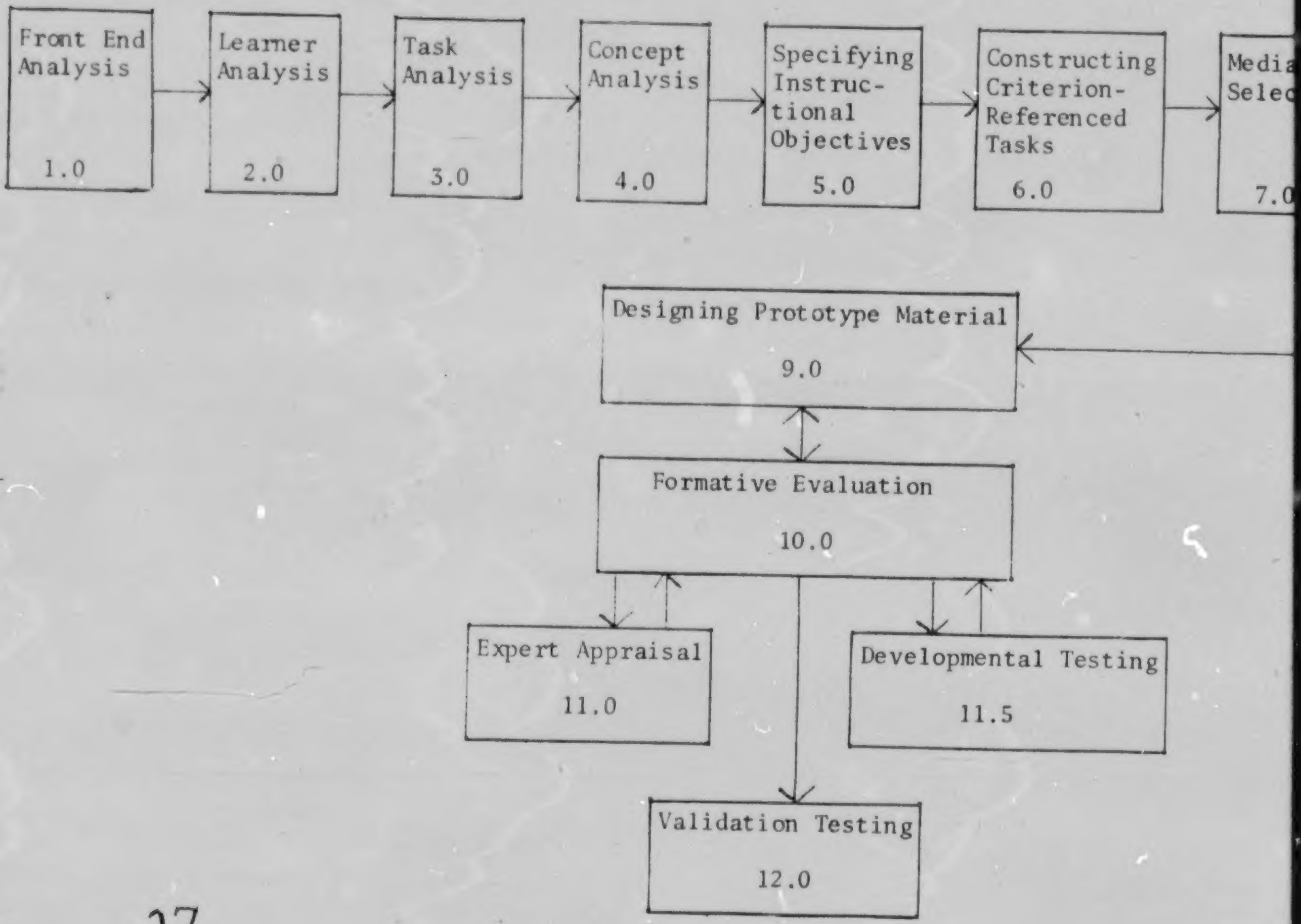
Front End Analysis
1.0
Learner Analysis
2.0
Task Analysis
3.0
Concept Analysis
4.0
Specifying Instructional Objectives
5.0
Constructing Criterion-Referenced Tasks
6.0
Media
Selec
7.0
Designing Prototype Material
9.0
Formative Evaluation
10.0
Expert Appraisal
11.0
Developmental Testing
11.5
Validation Testing
12.0

Figure 1

Flow Chart of Instructional Development Stages

(Thiagarajan, D. Semmel, & M. Semmel, 1974)

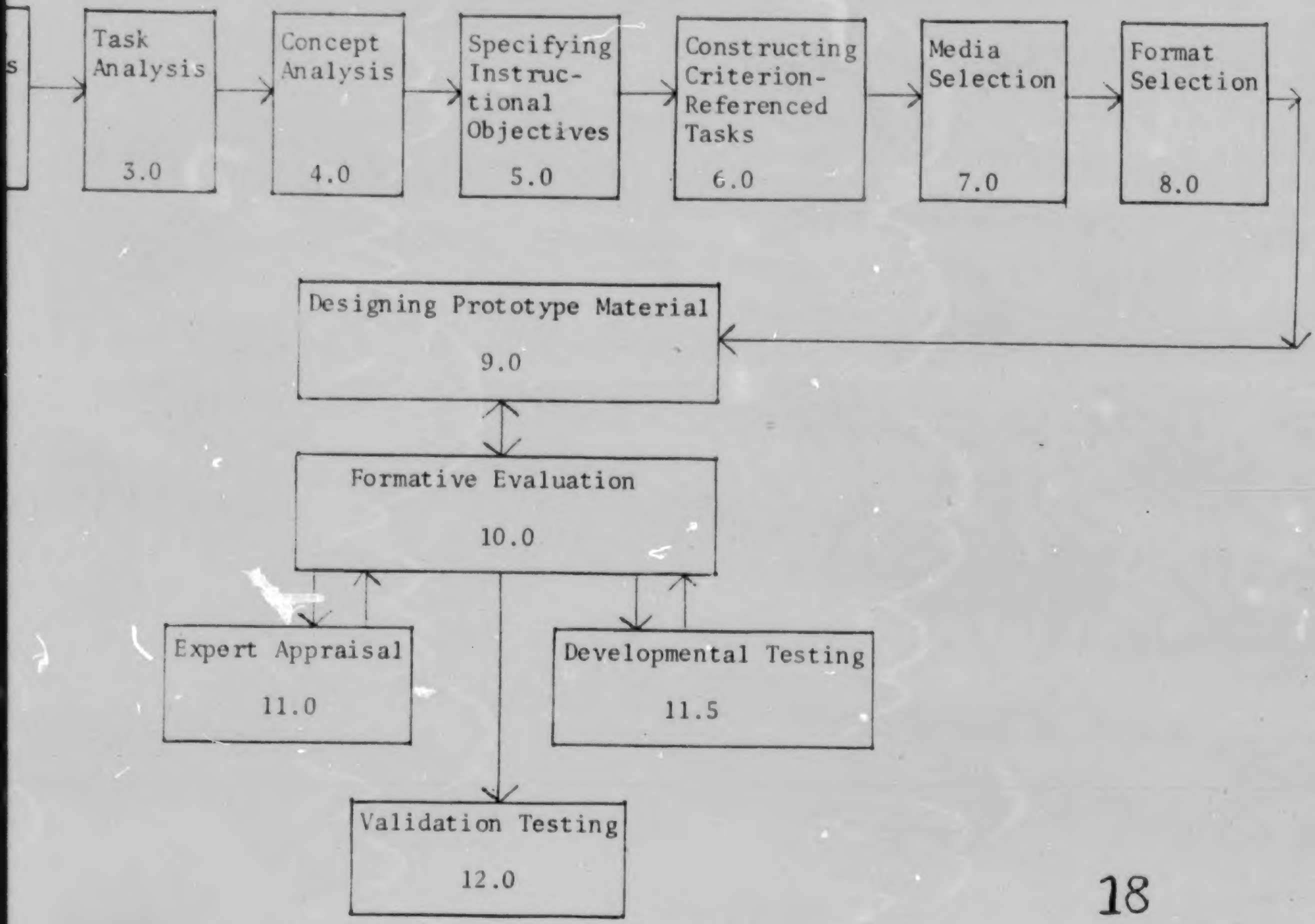
s
Task Analysis
3.0
Concept Analysis
4.0
Specifying Instructional Objectives
5.0
Constructing Criterion-Referenced Tasks
6.0
Media Selection
7.0
Format Selection
8.0
Designing Prototype Material
9.0
Formative Evaluation
10.0
Expert Appraisal
11.0
Developmental Testing
11.5
Validation Testing
12.0

Figure 1

Part I

Development of the Instructional Module

CHAPTER II

NEEDS ANALYSIS

This chapter describes the procedures which were used in choosing a valid teaching skill to be taught through the module. The three major components of the chapter are: (a) a needs assessment study; (b) a review of research relevant to both the teaching skill chosen and the potential learners of the skill and; (c) a critique of existing instructional modules which offer training in the use of an IRI.

Needs Assessment Study

Teacher training programs may demonstrate their effectiveness by influencing a stable change in a trainee's performance and by replicating the process which resulted in the behavior change (Thiagarajan, et al., 1974). Determining what knowledge and skills are necessary for effective teaching is a more complicated task. As a result of accountability demands and the adoption of performance-based standards, a teaching skill must first demonstrate its effect on pupil behavior before it may be judged valid. Unfortunately, it is only within the last 10 years that research has begun to systematically observe relationships between classroom process and product variables (Dunkin & Biddle, 1974; Flanders & Simon, 1960; Rosenshine & Furst, 1973). The teacher's behavior is generally observed in a systematic manner using an observation system or a rating scale. Measures are then taken of pupil growth and the two are correlated.

Rosenshine (1971) comprehensively reviewed the teacher effectiveness and pupil growth research and found no teaching behaviors which could be expected to consistently produce specific outcomes in pupils. Subsequently, Rosenshine and Furst (1971) synsthesized the findings from Rosenshine's earlier review and abstracted 11 variables which were judged to be the "most promising" teaching variables in terms of their effect on pupil performance. These are: (a) clarity, (b) variability, (c) enthusiasm, (d) task-oriented and/or business-like behavior, (e) student opportunity to learn criterion materials, (f) use of structuring comments, (g) types of questions, (h) probing, and (i) level of difficulty of instruction. However, the 11 variables cited were not shown to consistently affect pupil performance. Rosenshine and Furst themselves conclude, "we have little knowledge of the relationship between teacher behavior and pupil growth [p. 66]." The variables were recommended simply as being "promising" for further study.

Similar conclusions regarding the research on teacher effectiveness have been drawn by other researchers. Mood (1970), while holding that teachers exert a meaningful influence on pupils, admits that based on research, ". . .we cannot make any sort of meaningful quantitative estimate of the effect of teachers on student achievement [p. 7]." Heath and Nielson (1973) conclude, ". . .the research literature on the relationship between teacher performance and student achievement does not offer an empirical basis for the prescription of teacher training objectives [p. 16]." In their critique, Heath and Nielson (1973) go on to list others who have reviewed the research on the subject and reached similar conclusions (Brim, 1958; Dubin & Taveggia, 1968; Stephens, 1967), and cite Gage (1972) as having compiled a similar list.

Presently there appears to be no empirical basis for choosing the knowledge and skills to include in teacher training programs. Therefore, it is necessary to find alternate means for accomplishing the task. One alternative is to rely on knowledge which has resulted from years of experience. Even experimentalists (i.e., Campbell & Stanley, 1963), recognize the value of such traditionally established sources of knowledge. Additional means by which the material included in a teacher training program might be judged valid are expert opinion and/or a logical content analysis based on an established theoretical rationale (Turner, 1972). Curriculum choices based on one or more of these means, however must continually be subjected to evaluation to experimentally determine their classroom validity.

Purpose of the Needs Assessment

In an effort to ascertain which teaching competencies should be included in a special education teacher training program, the writer chose to conduct a needs assessment study. The study incorporated the following three criteria which have been suggested as viable means for establishing the face validity of teaching competencies: (a) experience; (b) expert opinion; and (c) a logical content analysis based on an established theoretical rationale.

Subjects of the Needs Assessment

A random sample of 20 individuals who had recently attended a Teacher Education Division (TED) meeting (Chicago, 1973) of the Council for Exceptional Children (CEC) formed the experimental sample. The subjects represented different regions of the United States and, because of their attendance, were presumed to have had an active interest in the preparation of special education personnel. Biographical information on the sample is summarized in Table 1. The subjects' aggregate experience, training, and positions qualify them as a panel of experts for the present study.

Constructing the Needs Assessment Questionnaire

Four procedures were used to determine the item content of the questionnaire. First, a review of the special education teacher education research was conducted. The majority of the studies located investigated special education teacher characteristics, attitudes, or reasons for choosing a career in special education (Gottfried & Jones, 1964; Jones, 1971; Jones & Gottfried, 1966; Meisgeier, 1965; Semmel, 1959; Willmar, 1966). As such, the studies were of limited use in devising a needs assessment instrument for determining those teaching competencies which should be included in a special education teacher training program. An extensive research project investigating competencies needed by special education teachers was performed by Mackie, et al. (Mackie & Dunn, 1955; Mackie, Kvaraceus & Williams, 1957; Mackie, Williams & Dunn, 1957; Mackie & Connor, 1961). These groups conducted a nationwide survey to identify and evaluate the knowledge, skills and abilities required by special education teachers. Criterion groups, committees composed of experts and teachers recommended as superior by their state departments, were used in the studies to judge the importance of a particular competency for special education teachers. A later

Table 1

Needs Assessment of Teaching Competencies Questionnaire: Biographical Information on Participants

VARIABLE	(N=20)	%
Occupation:		
College faculty	14	70.0
Staff	5	25.0
Graduate students	1	5.0
Educational Level:		
Doctorate	13	65.0
Doctoral student	4	20.0
Two years of college	2	10.0
Masters	1	5.0
Main Area of Study:		
Special education	15	75.0
Other branches of education	4	20.0
Psychology	1	5.0
Teaching Experience:		
Full-time teaching experience	19	95.0
With student teaching, but no full-time experience	1	5.0
Levels of Teaching Experience:		
Have taught elementary, secondary, special education or a combination of the three	16	80.0
Have taught at the college level	16	80.0
Area of emphasis of the 16 teaching at the college level: Special education	15	94.0
*Of the 15 who taught special education:		
noncategorical	5	33.3
mentally retarded	4	26.6
learning disabilities	4	26.6
emotionally disturbed	2	13.3
other	2	13.3

*Some of the 15 had experience in more than one area of special education

Table 1

(Continued)

VARIABLE	(N=20)	%
Levels of Teaching Experience: (continued)		
Handles inservice workshops for special education and inner-city teachers	1	6.0
Have teaching experience below the college level	12	75.0

study by Bullock and Whelan (1971) compared the responses made by the teachers in the Mackie et al. survey to the responses of another group of teachers and found the responses of the two groups differed significantly. Since the two surveys (Mackie, et al. 1955, 1957, 1957, 1961; Bullock & Whelan, 1971) produced contradictory evidence concerning the competencies thought to be necessary for special education teachers, it was decided to conduct the present questionnaire survey.

The second procedure used to determine the item content of the questionnaire was to ask a group composed of special education teacher trainees, classroom teachers, student teaching supervisors, and college methods course teachers to list 10 teaching competencies they felt a beginning teacher should possess.

The results of the first and second procedures were combined and organized using Educational Psychology: The Instructional Endeavor (Charles, 1972) as an operational guide. A small sample of subjects was used to test the initial version of the questionnaire for: clarity of format and wording; the comprehensive nature of the items; time needed to administer the questionnaire; and feasibility of a telephone call data collection format. The final revisions were made and a telephone call format was standardized for data collection.

Procedure

A 45-item questionnaire divided into four major sections dealing with planning, teaching skills, curriculum content, and learning characteristics was constructed and administered to the random sample of subjects drawn from the TED regional meeting of CEC (Chicago, 1973).

The subjects were contacted by phone and asked to participate. Interviewers used a standardized telephone call format to avoid biasing the answers of the respondents, who rated each of the 45 items of the needs assessment questionnaire (see Appendix A) on a four-point scale (A--very important, B--important, C--not very important, D--unimportant). All subjects agreed to participate and thus one hundred percent cooperation was obtained.

Analyses and Results

Each of the ratings on the rating scale was assigned a point value (A=4, B=3, C=2, D=1) and the total point assignment for an item was computed by multiplying the number of times an item was given a specific rating by the point value of that rating. The items were then ranked from most to least important on the basis of their total point assignment. When tabulating Table 2, the four subsections (planning, teaching, curriculum, and learning characteristics) into which the questionnaire was originally divided were eliminated and all 45 questionnaire items were placed in a common pool to be ranked. In the tabulation of Table 3 the original form of the questionnaire was maintained and the items in each subsection were ranked only against other items in that subsection.

Summary and Rationale for Choosing the Competency to be Taught by the Instructional Module

Since the empirical literature to date has not consistently demonstrated the validity of any specific teaching competency, it was necessary to conduct a needs assessment study to ascertain which com-

Table 2

Rank Ordering of all Items on the Needs Assessment Questionnaire

Item	Rank Order*	Point Assignment
Language (oral and aural)	1.0	79
Reading	3.0	78
Planning instruction	3.0	78
Determining the instructional level of a student	3.0	78
Matching instruction to the needs, interests, and abilities of students	5.5	77
Interesting and motivating learners	5.5	77
Identifying effective learning modes for individual students	8.5	76
Language ability	8.5	76
Social development	8.5	76
Developmental characteristics	8.5	76
Determining behavioral objectives	11.5	75
Selection of appropriate curriculum materials	11.5	75
Affective development	13.0	74
Creating classroom climates	14.5	72
Recreation	14.5	72
Motor training (perceptual-motor)	16.5	71
Transfer of training (applying learning to new situations)	16.5	71
Keeping classroom records and other class organizational skills	20.0	70
Implementing preventative measures for improving class control	20.0	70
Sensory-motor development	20.0	70
Attention	20.0	70
Implementing corrective measures for improving class control	20.0	70
Social studies skills	24.0	69
Developing and using informal tests	24.0	69
Facilitating and improving classroom interaction	24.0	69
Math	26.0	68

*Most to least important

Table 2

(Continued)

Item	Rank Order*	Point Assignment
Techniques for working with groups	28.0	67
Memory	28.0	67
Knowing principles for developing teacher-made materials	28.0	67
Locating and using informal and free materials found at home and elsewhere	30.0	65
Questioning techniques	31.5	64
Creativity	31.5	64
Using a variety of teaching styles	33.5	63
Designing the physical layout of the classroom to suit the teaching purpose or approach	33.5	63
Socioeconomic factors	35.0	62
Intellectual characteristics--(i.e., IQ, MA)	36.5	61
Interpreting standardized test results and using them for instructional purposes	36.5	61
Art	38.0	60
Analyzing classroom verbal interaction	39.5	59
Locating, choosing, and evaluating commercial materials	39.5	59
Principles for grouping	41.0	58
Music	42.0	57
Science	43.0	55
Writing/composition	44.0	54
Spelling	45.0	53

*Most to least important

Table 3

Sectional Ranking of the Items on the Needs Assessment Questionnaire

Items (by questionnaire section)	Ranking Order*	Point Assignment
FOCUS ON PLANNING		
Planning instruction	1.0	78
Matching instruction to the needs, interests, and abilities of students	2.5	77
Interesting and motivating learners	2.5	77
Determining behavioral objectives	4.5	75
Selection of appropriate curriculum materials	4.5	75
Keeping classroom records and class organizational skills	6.0	70
Knowing principles for developing teacher-made materials	7.0	67
Locating and using informal and free materials found at home and elsewhere	8.0	65
Designing the physical layout of the classroom to suit the teacher purpose or approach	9.0	63
Locating, choosing, and evaluating commercial materials	10.0	59
FOCUS ON TEACHING		
Determining the instructional level of a student	1.0	78
Identifying effective learning modes for individual students	2.0	76
Creating classroom climates	3.0	72
Implementing preventative measures for improving class control	4.5	70
Implementing corrective measures for improving class control	4.5	70
Facilitating and improving classroom interaction	6.5	69
Developing and using informal tests	6.5	69
Techniques for working with groups	8.0	67
Questioning techniques	9.0	64
Using a variety of teaching styles	10.0	63
Interpreting standardized test results and using them for instructional purposes	11.0	61
Analyzing classroom verbal interaction	12.0	59
Principles for grouping	13.0	58

*Most to least important

Table 3

(Continued)

Items (by questionnaire section)	Ranking Order*	Point Assignment
FOCUS ON CURRICULUM		
Language (oral and aural)	1.0	79
Reading	2.0	78
Recreation	3.0	72
Motor training (perceptual-motor)	4.0	71
Social studies skills (affective development)	5.0	69
Math	6.0	68
Art	7.0	60
Music	8.0	57
Science	9.0	55
Writing/composition	10.0	54
Spelling	11.0	53
FOCUS ON LEARNING CHARACTERISTICS OF EDUCABLE MENTALLY RETARDED CHILDREN		
Language ability	2.0	76
Social development	2.0	76
Developmental characteristics	2.0	76
Affective development	4.0	74
Transfer of training (applying learning to new situations)	5.0	71
Sensory-motor development	6.5	70
Attention	6.5	70
Memory	8.0	67
Creativity	9.5	64
Socioeconomic factors	9.5	62
Intellectual characteristics--(i.e., IQ, MA)	11.0	61

*Most to least important

petencies to include in a special education teacher training program. A questionnaire combining the criteria of: (a) experience, (b) expert opinion and, (c) a logical content analysis was constructed and administered to a randomly selected group of individuals active in teacher training.

As reported in Table 2, the questionnaire items that received the highest rankings were language, reading, planning for instruction, and the ability to determine instructional levels. Two of the items which received the highest ranking were combined to form the basic portion of the competency chosen to be taught by the module: the ability to determine the instructional reading level of an exceptional child.

A subsequent investigation revealed that the informal reading inventory (IRI) is an effective means of determing the instructional reading level of a child. Research and expert opinion both support the use of the IRI as a viable assessment technique for providing classroom teachers with the fundamental information necessary to determine a child's functional (including instructional) reading levels. (B[illegible]din, 1970; McCracken, 1967; Zintz, 1970). Miller (1972) states that the individually administered IRI ". . .is the most effective way to ascertain the instructional and independent reading levels of children. It is an indispensable aid to reading diagnosis and correction whatever developmental reading program is employed in the classroom [p. 214]." Thus, the final form of the specific competency chosen to be taught by the module was: the ability to use an IRI to determine the instructional reading level of an exceptional child. The following review of related research lends further support for the competency selected.

Review of the Literature

The first section of Chapter II identified the teaching competency to be taught through the module: use of an IRI to determine the instructional reading level of an exceptional child.

The review of related research in the present section attempts to answer the following questions which are relevant to the competency selected:

1. What in the research on reading and the mentally retarded supports the premise that special education teachers must approach the task of teaching reading diagnostically and, thus, will need skill in evaluating the reading level and performance of individual children?
2. Is there any indication in special education reading research that standardized tests might not be the most appropriate measurement devices to use for purposes of placement and diagnostic instruction?
3. Basic to the diagnosis and planning of reading instruction is the ability to determine at what level instruction should begin for an individual child. What evidence is there that teachers are not consistently able to accurately identify the instructional reading levels of children?
4. Does research indicate that the IRI is an effective assessment instrument to use when determining a child's instructional reading level?

A selective review of the literature revealed that, in some instances, both individual studies and groups of studies were available which afforded a combination of direct and indirect information useful in formulating answers to the questions posed.

Pertinent literature was reviewed under the following headings: (a) reading characteristics of the mentally retarded; (b) effectiveness of methodological approaches for teaching reading to the mentally retarded; (c) diagnostic ability of classroom teachers; (d) assessment and diagnosis; and (e) summary.

Reading Characteristics of the Mentally Retarded

Almost without exception, studies which deal directly with the reading performance of retarded children focus on the educable mentally retarded (EMR) child. EMRs, sometimes referred to as "slow learners," have an approximate IQ range of 50 to 80, as measured by an individual intelligence test. The largest portion of the population is composed of culturally deprived or disadvantaged children whose retardation often does not become apparent until they enter school, where academic achievement is the prime measure of success.

Researchers have used various approaches when examining the reading ability of retarded children. The most recent of these is the approach which compares the performance of adequate to inadequate readers. Studies illustrating this type of comparison and studies using other earlier approaches (i.e., the comparison of the reading performance of retarded and normal IQ subjects and the within-group comparison of the performance of endogenous and exogenous retarded subjects) were included in the present section.

Comparison of the reading performance of retarded and normal IQ subjects. In the most comprehensive study of its type to date Dunn (1953) compared the reading performance of 20 EMR boys (CA 10.1 to 16, IQ 50 to 90) from special classes with the reading performance of 30 mentally normal boys (CA 7.5 to 10.2, IQ 95 to 112) attending regular classes. Subjects were equated on mental age (MA 8.0 to 10.0) and were from approximately the same geographical region. An extensive battery of tests was administered to all subjects. The battery was composed of both standardized tests and experimenter-developed measures. The intent was to measure aspects of and factors related to the reading process. The aspects of the reading process measured were: (a) silent and oral reading, (b) patterns of reading errors, (c) use of context clues, (d) ability to blend sounds, (e) eye movement during reading, (f) speed in recognition of words and phrases. The selected factors related to the reading process which were measured were: (a) reading potential, (b) school achievement, (c) auditory acuity, (d) visual efficiency, (e) lateral dominance, (f) personal adjustment, (g) home conditions, and (h) school history. Retarded subjects were found to function below normal subjects on all aspects of the reading process, particularly in: silent and oral reading; use of context clues; and speed of recognition (timed and untimed) of words and phrases. On select factors related to reading, retarded subjects were found to score lower in: arithmetic; oral spelling; auditory acuity; and visual efficiency. No difference was found between the two groups on measures of: handedness, eyedness, mixed lateral dominance or tests of reading capacity. Based on teacher ratings, retarded subjects were found to be more socially and emotionally maladjusted and to have more home problems than normal subjects. A within-group comparison revealed that EMR subjects scored up to capacity on arithmetic fundamentals, but below capacity on arithmetic reasoning, spelling, and silent and oral reading.

Using an approach similar to Dunn's (1953), Bliesmer (1954) compared the reading comprehension of 56 bright (mean IQ 126.5) and dull (mean IQ 79.5) children of approximately the same mental age (mean MA 11.3). Subjects were sampled from a large Iowa city. The low IQ children were selected from a combination of special and regular classes. Bliesmer (1954) investigated the following abilities: (a) word recognition; (b) word meaning; (c) memory for factual details; (d) perception of relationships; (e) drawing inferences and conclusions; (f) reading rate: and (g) listening comprehension. Dull children were found to be inferior to bright children in: total reading comprehension; memory for factual detail; listening comprehension; recognition of main ideas; and drawing inferences and conclusions. However, no significant difference in reading rate was found between the two groups.

The results from both the Dunn (1953) and Bliesmer (1954) studies indicate that retarded children perform poorer on reading measures than do children of normal intelligence even when the groups are matched for MA. A second interesting finding of the Dunn (1953) study was that not only did retarded subjects perform below normal subjects, but they also performed below their own MA expectancy level. The latter was confirmed by Dunn (1956) in an extensive review of the research dealing with reading and the retarded. Out of 14 studies reviewed by Dunn (1956), the results of 11 indicated that special class students were performing below their MA expectancy level. Special class students were reading up to or in advance of their mental age expectancy level in only 3 of the 14 studies reviewed.

Comparisons of the performance of endogenous and exogenous retarded subjects. Capobianco and Miller (1958) attempted to identify variations in reading performance which might exist within the retarded population. They compared the reading performance of 29 exogenous and 29 endogenous mentally retarded boys on: silent and oral reading ability, patterns of reading errors, and auditory and visual perceptual techniques. Experimenters administered the following tests to all subjects: California Achievement Test, Gray Oral Reading Paragraphs Test, Iota Word Recognition Test, Monroe Word Discrimination Test, Gates Auditory Techniques Tests and Gates Visual Perception Techniques. No significant differences were found between the groups on either academic achievement, silent and oral reading or auditory and visual perception techniques. An analysis of reading errors indicated no significant differences in the total number of errors or on the eight types of errors measured. The exogenous subjects were significantly better at giving words with the same ending. Endogenous subjects had more words aided and refused.

The most significant result of the Capobianco and Miller (1958) study was the amount of heterogeneity found to exist within rather than between each group. Further, the range of performance exhibited by

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the exogenous subjects was consistently broader than that exhibited by the endogenous subjects.

Bensberg (1953) compared the relationship of academic achievement of retarded subjects (IQ 38-87) to etiology, sex, and institutionalization. Criteria for selection of subjects were: chronological age under 30; had taken an American School Achievement Test (ASAT) and a Revised Stanford Binet during the six-month period of the study, and exhibited no physical handicaps which would influence performance on an achievement or an intelligence test. Information from the files of the 504 subjects was used to compare the relationship of academic achievement to the other aforementioned variables. Results indicated that subjects achieved at essentially the same level as the normative population of comparative mental ages. The investigation into the effect of the sex variable indicated that in both reading and arithmetic achievement the performance of female subjects exceeded that of male subjects. Finally it was found that neither institutionalization nor etiology affected academic achievement.

Although not a reading study, the Capobianco (1956) study lends considerable support to the finding of the Capobianco and Miller (1958) study that no significant performance differences exist between groups. Capobianco examined the quantitative and qualitative performance difference between 29 exogenous and 36 endogenous mentally handicapped boys in arithmetic achievement. Subjects had IQs of 40 to 78, MAs of 6.2 to 11.8 and CAs of 10.4 to 25.9. A battery of four tests was administered individually to all subjects: The Compass Survey Test, computational; Stanford Achievement Primary Arithmetic Tests, reasoning;

Buswell-John Diagnostic Chart, habits of computation; Hannum Arithmetic Test, general aspects of arithmetic achievement. Qualitative tests of rigidity, reversals, and concept of zero were adapted from the Hannum test items. Capobianco found no significant differences between the groups on either qualitative or quantitative measures.

The results of the Capobianco and Miller (1958), Bensberg (1953) and Capobianco (1956) studies indicate there are no significant differences in the academic achievement of brain injured and non-brain injured individuals. The Cegelka and Cegelka (1970) research review reported the same conclusion.

Comparison of the performance of adequate and inadequate readers. Reger (1964) sought to determine whether anxiety had any relation to the reading ability of retarded (IQ 50-85) children. His subjects, 52 institutionalized boys matched for IQ and MA, were divided into groups of good and poor readers, based upon reading achievement as measured by Stanford Achievement Tests. The Child's Manifest Anxiety Scale (CMAS) was then administered to all subjects.

A comparison of reading achievement scores to the anxiety scores obtained on the CMAS found that poor readers received significantly higher anxiety scores than good readers. Further, while a negligible correlation (.09) was found between rank order reading scores and CMAS scores of good readers, a significant inverse correlation (-.40) was found between the rank order reading and CMAS scores of poor readers.

Shepherd (1967) attempted to identify differences between adequate and inadequate EMR readers in: (a) the reading process and (b) factors associated with reading. Subjects were 78 male Caucasians with one or more years in special education and MA scores of 7.0 to 10.0. Subjects were drawn from four Illinois communities with well-established special education programs and certified teachers of EMR children. Adequacy or inadequacy of reading was determined by comparing reading age (RA) and MA scores. Adequate readers were defined as those reading above projected MA scores; inadequate readers, as those reading below projected MA scores. The two groups were matched for MA and an extensive battery of tests was individually administered to all subjects. The battery measured: (a) silent and oral reading; (b) patterns of reading errors; (c) fund of basic information; (d) ability to use context clues; (e) memory for design; (f) visual closure; (g) ability in psycholinguistic functions; (h) handedness, eyedness, and lateral dominance; (i) personal adjustment; and (j) home conditions. An analysis of the results revealed that good readers were better at: (a) silent and oral reading; (b) use of context clues; (c) digit span; and (d) sound blending.

No significant difference was found between the groups on: (a) auditory discrimination; (b) memory for design; (c) visual closure; (d) grasp of grammatical structure of the language; (e) visual motor sequencing; and (f) handedness, eyedness or lateral dominance. No difference was found in the fund of basic knowledge possessed by the groups unless word recognition was required and then adequate readers scored higher. Further, an analysis of patterns of reading errors indicated poor readers were very poor in phonetic and word attack skills. Home conditions were rated to be approximately the same for the two groups and the two measures of social and emotional adjustment were in disagreement. An inability to read appears to be the main feature which distinguishes the two groups.

Cawley, Goodstein and Burrow (1968) adopted an approach somewhat different from Reger's (1964) and Shepherd's (1967). They investigated the problems of: (a) whether reading and select psychomotor characteristics, which tend to differentiate good and poor readers of normal intelligence, also differentiate good and poor readers of retarded intelligence; (b) whether good readers of both normal and retarded intelligence exhibited any similarities or differences in reading processes and psychomotor characteristics; and (c) whether poor readers from both groups exhibited any similarities or differences in these same areas. Subjects consisted of a sample of 127 pupils with average and retarded mental development (MA 9 to 10) and good and poor reading abilities. Table 4 offers a profile of the mean CA, MA, IQ, and RA for good and poor readers of both average and retarded mental development.

Relative reading characteristics were measured by the Gates-McKillop diagnostic reading tests. The Developmental Test of Visual Perception and the Gottshaldt Embedded Figures Test were utilized as the primary means of assessing visual perceptual abilities. In addition, Van Wagenen's Czech Words, Goodstein's Language Acquisition Determinant, Gates Associative Learning Test, Harris Tests of Lateral Dominance, Detroit Tests of Learning Aptitude, Informal Visual Word Discrimination Test, Wepman Auditory Discrimination Test, Beery Visual Motor Integration Test and Benton Revised Visual Retention Test were administered as measures of relevant psychomotor characteristics.

Table 4

Mean Chronological Age, Intelligence Quotient, Mental Age and Reader's Age for Good and Poor Readers of Average and Retarded Mental Development

Subjects	Variables	Good Reader Mean	Poor Reader Mean
Average	CA	122[a]	122
	IQ	103	98
	MA	125[b]	120
	RA	126[c]	97
Mentally Retarded	CA	168	164
	IQ	68	70
	MA	113	114
	RA	113	84

a, b, c--CA, MA, and RA grades reported in months

The results were as follows:

1. The poor readers of either intellectual sample were inferior to the good readers.

2. When performance differences between retarded and average readers did occur, these differences were found to be attributable to the original discrepancies which existed between reading and mental age.

3. An examination of the types of errors which were made by the retarded poor readers seemed to suggest that the children were weak in analytic phonetic skills.

4. Good and poor readers were infrequently distinguished on measures of psychomotor characteristics.

5. There was no indication that psychomotor characteristics and reading characteristics were substantially related.

Of paramount importance is the fact that there was more variance in the patterns of errors within the groups than between the groups. In addition, the reading performance of good readers from both groups approximated their mental ages while the reading performance of poor readers from both groups was two years and more below their mental ages.

An investigation by Ramanauskas and Burrow (1969) compared the performance of 62 children of average intelligence (mean IQ 99) with 35 EMR children (mean IQ 67) on the Wechsler Intelligence Scale for Children (WISC) subtests' scores and the Gates-McKillop Reading Diagnostic Tests. EMR subjects were drawn from both regular and special classes. The total number of subjects was broken into six groups with WISC subtest profiles which exhibited minimum within-group variance and maximum between-group variance. Subtest means for the groups were graphed and six profiles resulted; two above average, two average, and two below average. The groups with the two highest and the two lowest WISC profiles were chosen for further analysis and the reading achievement of the four groups was compared.

Results indicated that the above-average groups had similar WISC profiles, but differed significantly in reading grade equivalent (RGE) scores. Group 1 (above-average, poor readers) received an RGE score of 3.1, while Group 2 (above-average, good readers) received an RGE score of 6.5. The below-average groups also had similar WISC profiles and differed significantly in RGE scores. Group 3 (below-average, poor readers) received an RGE score of 2.3, while Group 4 (below-average, good readers) received an RGE score of 4.3. The most interesting results were obtained when Groups 1 and 4 (bright, poor readers and dull, good readers respectively) were compared. As would be expected, the WISC subtest profile scores for the two groups differed significantly. Groups 1's profile was in the above-average range and Group 2's profile was in the below-average range. However, while the RGE scores for Groups 1 and 4 also differed significantly, the difference was not in the expected direction. Group 4, with the retarded profile, received a higher RGE score (4.3) than Group 1, which received an RGE score of 3.1. Lastly, the standard deviations of the means of the WISC subtest profiles were compared and from the results it was concluded, "...that the evenness and extent of variability is such that accuracy of prediction of scores 'characteristic' of certain groups is not enhanced [Ramanauskas and Burrow, 1969, p. 23]."

In summary, it may be said that research, regardless of the approach taken, has failed to identify any one variable or group of variables which can account for the discrepancies in the reading performance of EMR children. Reading appears to be a highly individualized process and the same factor or factors which may be associated with reading ability in one case may be associated with reading disability in another case (Spicker & Bartel, 1968).

Methodological Approaches for Teaching Reading to the Retarded

Only experimental studies which tested the effectiveness of a given method of teaching reading to mentally retarded children in a controlled situation were reviewed in the present section. The studies included in this section investigated a wide variety of teaching approaches and thus afford a broad base from which implications may be drawn.

Frey (1960) tested the effectiveness of the Strauss-Lehtenin Method of teaching brain injured children. His subjects were 20 brain injured children who had attended a special class for the brain injured for an average of 2½ years and 20 non-brain injured subjects attending regular or special classes. Subjects were matched on the basis of IQ (mean of 79), CA (mean of 10.4) and MA (mean of 8.2). Brain injury was diagnosed by intensive psychological testing and medical examination. No medical examination or psychological testing, other than the WISC, was used to rule out brain injury. The battery of tests administered to participants included: (a) Gates Primary Reading Test; (b) Gray Oral Reading Test; (c) Iota Word Recognition Test;

(d) Monroe Sound Blending Test; (e) Monroe Letter Memory Test; (f) Monroe Word Discrimination Test.

Results indicated that the brain injured subjects who had received special instruction scored significantly higher on two measures of silent and oral reading and ability to blend sounds. The non-brain injured group made significantly more of the following types of errors: faulty vowels and consonants, omissions of sounds, and substitutions of words. No significant difference was found between the groups on the other types of errors or on visual memory.

Cruickshank, Bentzen, Ratzeburg, and Tannahauser (1961) investigated the effects of nonstimulating classroom environment, specially prepared teaching materials, and highly structured teaching methods (a modified Strauss-Lehtenin approach) upon the learning problems and school adjustment of hyperactive, emotionally disturbed children--with and without clinically diagnosed brain injury.

Forty children (CA 6.11 to 10.11, MA not less than 4.8, and IQ not less than 50) who were educationally retarded and exhibited hyperactive and aggressive characteristics were chosen to participate. Each child was given a diagnostic work-up including: a pediatric and neurological exam; an electroencephalographic reading; and psychiatric, psychological, educational, speech, and hearing evaluations. Developmental and environmental information about subjects was collected and case histories were prepared. Subjects were then divided into two groups. Group 1 children had clinically diagnosed neurological and medical evidence of brain injury. Group 2 children demonstrated psychological behavior and learning disabilities similar to those of the brain injured group, but had no other test or case history evidence of any actual brain injury. Subjects were divided into four matched groups of ten each. Five within each group were brain injured, and five were non-brain injured. Of the four groups: two were designated as experimental and received Cruickshank's modification of the Strauss method; the remaining two were designated as control and received traditional instruction plus any aspect of the experimental treatment which appealed to the control teachers. Educational, psychological, and psychiatric evaluations were obtained at the beginning and end of the study. Anecdotal records and classroom observations were also utilized.

An analysis revealed that all groups showed significant improvement, but no significant differences were found between groups on any measure. Thus, neither the Cruickshank (Strauss-Lehtenin) nor the traditional approach were proven superior.

Laura Jordan (1965), a proponent of the verbal readiness approach, initiated a four-year prereading program which emphasized the development of verbal skills. Her subjects had no previous school exposure and had an IQ range of 50 to 85. The experimental group attended a special class which used experience charts and emphasized readiness skills. During the second, third, and fourth years the treatment included a modified basal reader in addition to the experience charts and readiness activities. The control subjects attended regular classes and received the same reading instruction as their normal IQ peers. Standardized reading tests were used to test progress. At the end of the first and second years control subjects scored significantly higher than experimental subjects. By the fourth year there was no significant difference between the groups, but the experimentals were beginning to surpass the controls in comprehension.

A teaching approach which has received much attention is based on the Delacato theory of neurological organization. Robbins (1966) investigated the efficacy of Delacato's approach in increasing reading ability. He tested the following hypotheses:

> 1. "Are the purported indicators of neurological organization--creeping and laterality--directly related to reading ability as suggested by the theory?
> 2. Will the addition of the Delacato program to the subjects' ongoing curriculum enhance their reading development?
> 3. Will the subjects' lateral development be enhanced by the theory? [p. 517]."

The subjects were lower middle-class second graders equated for IQ, age, creeping, and laterality. Group 1 received the normal curriculum, Group 2 received the normal curriculum plus Delacato's methods, and Group 3 received the normal curriculum plus activities not known to be associated with reading achievement. An analysis of the pre and posttest results failed to support the postulated relationship between reading achievement and neurological organization. The experimental treatment was not found to enhance either the reading performance or the lateral development of the experimental children.

Blackman and Capobianco (1965) compared the reading, arithmetic, and behavioral performance of 19 mentally retarded subjects (CA 14.1; IQ 54.3 and reading grade 1.3), who were taught through programmed instruction via teaching machines, to the performance of 17 mentally retarded subjects (CA 14.3; IQ 54.2; and reading grade 1.3), who were taught the same material via "traditional" techniques. Subjects were tested at the beginning and end of the school year. An analysis of the scores revealed that all subjects made significant gains from pre to posttest; however, there was no significant academic performance difference between the two groups. Experimental subjects did exhibit a significant improvement on the measures of in- and out-of-class behavior.

More recent research efforts have attempted more complex comparisons, testing numerous teaching approaches and various combinations of approaches simultaneously.

Woodcock and Dunn (1967) compared the effectiveness of six different approaches to teaching beginning reading to 321 EMR (Mean IQ 66; Mean MA 6.9; and Mean CA 8.8) children. Subjects were children who had not yet been exposed to reading or older children who had not yet learned to read. The approaches investigated were: (a) language experience, (b) basal reader with traditional orthography (TO), (c) programmed text with TO, (d) programmed text using the initial teaching alphabet (ita), (e) basal readers using ita, and (f) basal reader using the rebus symbols. All programs utilized the Peabody Development Kits as a base and had supplementary reading materials. Volunteer special class teachers were randomly assigned to teaching methods; however, if a teacher strenuously objected to one method, he/she was randomly assigned to a second treatment.

Results indicated that subjects made a mean gain of five and one-half months from pre to posttest; however, once again there were no significant achievement differences between methodological groups.

In a three-year study begun in 1966, Dunn and Mueller investigated the efficacy of using the ita in teaching beginning reading and the Peabody Language Development Kits (PLDK) in stimulating oral language and verbal intelligence. The study sampled 216 culturally disadvantaged first-grade children. Four groups comparable on CA,MA, IQ, language age, level of education of the parents, number of family members, and types of housing were formed. The groups were assigned to the following treatments: Group 1, ita only; Group 2, ita plus PLDK; Group 3, PLDK; and Group 4, control group. The ita and the PLDK were the major adaptations in the curriculum for the experimental groups. Experimental teachers were also provided extra incentives not provided to control teachers.

Test data was secured in three areas of development: school achievement; language development; and verbal intelligence. After one year, results revealed children who received instruction in the ita, with or without the PLDK, did significantly better than those using basal readers. Children who received instruction in the PLDK had significantly higher scores on overall language functioning than groups not receiving PLDK lessons.

Results after the second year of the study (Dunn, Pochanart & Pfost, 1967) were similar to the results after the first year of the study. Children using the ita were significantly more advanced in reading achievement than children receiving a conventional reading approach. Further, the children receiving a combination of the ita and two years of the PLDK exhibited more progress than any other group. However, the additional incentives given to the experimental teachers confounded the experimental treatments and necessitated a second study to control for the unequal-incentive variable.

In an effort to control for the discrepancy in the treatment given to the teachers in the Dunn, Pochanart and Pfost (1967) study; Dunn, Neville, Bailey, Pochanart and Pfost (1967) initiated a study where the teachers in all groups were provided with extra support and incentives. The effectiveness of the ita and two additional methods (Words in Color and a Supplemented Conventional Reading Program) were tested. After one year, no difference in school achievement was found between any of the groups; however, subjects receiving the Supplemental Conventional Reading Program tended to score higher than the other two groups. Once again the premise that no one method is effective for all children was confirmed.

To increase the motivational quality of the basal readers and make them more appropriate for use with low achieving students, most reading series have added what are called low vocabulary, high interest readers. While the teaching approach--the basal reader--remains the same, it is proposed that the revised materials afford additional motivation and make the approach more effective. Koelsch (1969) set out to test the readability and interest level of five new high interest, low vocabulary books. He performed a Spache readability check on the readers and grouped their stories into interest categories. He then administered an interest inventory to his EMR subjects. There was no significant difference in readability among the series; however, there were significant differences in their interest categories. Most important, there was a very low correlation between the interest categories of the series and that of the EMRs reading at that level. The results appear to negate the high interest claim of the readers and thus put in question the higher motivational claim of the readers.

Studies investigating the effectiveness of various reading methods have almost unanimously reached the same conclusion. No one approach to the teaching of reading seems to be more consistently effective than any other approach (Cegelka & Cegelka, 1970). Interestingly, studies investigating the effectiveness of various reading methods with the nonretarded population have yielded results parallel to those obtained with the exceptional population. Consequently, reading specialists in the fields of education and special education have come to similar conclusions and are emphasizing the need for a diagnostically based approach to teaching reading. Concurrent with the demand for the adoption of a diagnostic reading approach is the demand for diagnostically trained teachers to implement the approach (Bond & Tinker, 1968). As Burnett (1963) states, "More and more, as mounting research evidence seems to indicate that there is no best way to teach reading to every individual, emphasis has been placed on making every teacher a 'diagnostic' teacher [p. 229]."

Diagnostic Ability of Classroom Teachers

The concept of the teacher acting as a diagnostician and basing instruction on the needs of individual students is not new. Experts have been stressing the need for this kind of diagnostically based instruction for half a decade (Betts, 1946; Gray, 1920; Strang, 1969; Zintz, 1970). There are, however, numerous levels of diagnosis and many experts agree that before more sophisticated levels of diagnosis can be undertaken teachers must first be able to perform the basic task of determining the correct level for instruction to begin (Austin & Heubner, 1962; Chall & Feldman, 1966; Harris & Smith, 1972).

The following section reviews the recent research which investigates t[illegible] diagnostic abilities of teachers. Several of the studies address themselves directly to the question of whether or not teachers are able to accurately identify instructional reading levels of pupils.

There exists a paucity of research investigating the ability of special education classroom teachers to diagnose the reading performance of students. On the premise that to adequately plan for instruction the teacher must first be able to identify the child's instructional reading level, Brown (1967) compared teacher-assigned instructional levels to assessed instructional reading levels. Thirty children from 15 intermediate level classes were individually tested with materials recommended for use in special classes and their instructional reading level was assessed. The obtained reading levels were then compared to teacher-assigned reading levels. Only half (50%) of the children were found to be correctly placed, 23% were underplaced and 27% were overplaced. Teachers commented that two of the underplacements and one of the overplacements were made deliberately to accommodate reading groups.

Emans (1965) investigated the ability of teachers to diagnose the reading skills in which children need help. Subjects were 20 teachers enrolled in a 6 credit hour graduate course in remedial reading. The teachers' age range was 23 to 57 years (mean 44.6), their range of experience was 1 to 35 years (mean 13.9), and 15 of the teachers had taken at least one special reading course prior to the course in which they were enrolled. Since the study took place near the end of the course the author concludes, "...that the teachers in this study had achieved considerably more experience and education in the teaching of reading than the majority of the teachers in most school systems [p. 259]." Each teacher had been working on an individual basis with two children for an hour a day, five days a week for fifteen weeks. Teachers were asked to rank 15 reading skills identifying the order in which children needed help. The Reading Diagnostic Test, widely used in remedial reading clinics, was individually administered to all children. The ranking of skills yielded by the test was compared to teacher rankings.

Results indicate that the teachers in the study, "were unable to distinguish the skills on which the children needed help unless they determined them by a well-accepted reading test [p. 260]." An additional correlation of the rankings which each teacher gave to the two children with whom he or she worked indicated that teachers were not diagnosing children individually, but were influenced by a mental set for what skills the child needed help in developing.

Burnett (1963) investigated the diagnostic proficiency of three groups of subjects by comparing their performance on a diagnostic problem-solving instrument. The subjects, who varied on training and experience, were 75 undergraduate students with no training or experience; 93 degreed elementary teachers from grades one through six, with several months to over 30 years experience; and 19 reading teachers, consultants, and supervisors. The test, administered to all subjects, consisted of two sets of five problems. Each problem was designed so that subjects received enough information to choose one of several solutions to each of the problems. Problems in each set represented specific levels of diagnostic reading procedures.

The 19 reading specialists were found to significantly outscore all other subjects ($p < .01$), and the teachers were found to outscore the undergraduates ($p > .05$). Neither years of experience, highest degree earned nor level of teaching experience (i.e. primary vs. intermediate) was found to significantly influence performance. Burnett cautions against any generalization of the findings since the present study was the first attempt at experimentally testing the validity and reliability of the diagnostic instrument.

In 1970, Burnett reported that after administering the problem-solving instrument to several hundred classroom teachers and elementary education graduates, he found experienced teachers performed only slightly better than undergraduate students and that teachers trained in remedial reading continued to perform significantly better than the other groups. Upon analyzing the diagnostic skills necessary for a teacher to insure his or her effective problem-solving behavior, Burnett noted, "...a teacher has to know what the difference is between an independent and an instructional reading level [1970, p. 8]." Burnett goes on to add that a teacher must also be capable of determining the reading frustration level of a child.

Moburg (1973) attempted to determine whether experienced teachers and teachers in training could accurately determine the functional reading levels (i.e., independent, instructional, frustration) of children, and whether or not training would facilitate the teachers' ability to determine functional reading levels. The 49 experienced teachers who participated in Moburg's final evaluation had one year or more of teaching experience at the elementary level and were enrolled in either graduate level reading courses or inservice reading workshops at Indiana University. The 152 teachers-in-training who participated were undergraduate students enrolled in undergraduate reading methods courses at the same university. The experienced teachers were asked to respond to a questionnaire indicating whether or not they felt comfortable about their ability to determine the functional reading levels of children. Experienced teachers and teachers-in-training were then randomly assigned to control and experimental groups. The experimental subjects received training in using a standardized reading inventory to determine functional reading levels. The control subjects received no special training other than that in the courses in which they were enrolled.

Results indicated that experienced teachers who felt confident about their ability to diagnose functional reading levels and experienced teachers who did not feel such confidence performed in a comparable manner on the criterion instrument. Further, the experienced teachers and teachers-in-training who were in the control group also performed in a comparable manner on the criterion instrument. Finally, the scores of the two groups were substantially lower than the scores of the experienced teachers and teachers-in-training who received special training in the use of a standardized reading inventory.

Kelly (1967) investigated the ability of teachers to identify the instructional reading levels of their pupils and the effectiveness of training in aiding teachers in that task. The subjects, 96 second- to sixth-grade teachers, were divided into groups of 32 each. Groups 1 and 2 received 10 hours of simulation training in administering McCracken's, Standard Reading Inventory. Group 1 received the instructions at the beginning of school while Group 2 received the training six weeks after school began. The control group received no training, and thus members were not aware that they were participating in an experiment. When the treatment for Groups 1 and 2 was completed, one pupil was randomly selected from each of the 96 teachers' classrooms. Investigators administered the Standard Reading Inventory to the pupils and determined their instructional reading level. The readability level of the basal reader which the child was currently using was then determined and compared to the investigator-determined instructional reading level.

The investigator found that teachers who received the special training at the beginning of the school year were significantly better at identifying the instructional reading level of their pupils than teachers in either of the other two groups. No significant difference was found between teachers who received training later in the school year and teachers who received no training.

Unfortunately, while research and expert opinion suggest that teachers adopt a diagnostic approach to the teaching of reading, teachers are often inadequately prepared to do so (Burnett, 1963; Burnett, 1970; Emans, 1965). In fact, research reviewed in the present chapter has demonstrated that a large percentage of teachers are unable to accurately perform the basic task of identifying the level on which to begin reading instruction (Brown, 1967; Kelly, 1967; Moburg, 1973). However, certain investigations have found that, given specialized training in assessment and diagnosis, teachers have demonstrated an increased capacity for correctly interpreting reading problems (Burnett, 1970, 1963) and accurately determining functional reading levels (Moburg, 1973; Kelly, 1967).

Assessment and Diagnosis

Assessment is an essential component of diagnostic teaching. To tailor-make a learning program the teacher must have as detailed and specific a picture of a child's learning profile as can be obtained. Assessment yields that picture. If that assessment yields inappropriate or insufficient information, then the teacher's picture of the child is distorted and his/her learning prescription for the child will be inappropriate or incomplete. The following review highlights the fact that perhaps the exclusive use of standardized tests for diagnosing the performance of EMR children is not the most effective procedure to follow.

The review then proceeds to explore the viability of using the IRI as a means of obtaining the diagnostic information which is so valuable in supplementing the information gained from standardized tests. The review demonstrates that the IRI affords a more accurate, complete picture of a child's reading ability than standardized tests alone.

Standardized Measures. Cawley (1966) questioned the contribution which standardized diagnostic batteries make to our knowledge about the reading performance of EMR children. He contended that the diagnostic batteries administered to children were so closely related to the original standardized measures, which had assigned the children the labels of good and poor readers, that little additional information helpful to diagnostic planning was gained by administering them. To test that assumption he administered the Developmental Reading Test (DRT), The Silent Reading Diagnostic Test (SRDT) and the Phonetic Mastery Test (PMT) to 67 EMR children (IQ 50-80 and mean MA 107 months). Subjects designated as good readers had a reading grade equivalent of 4.38 while subjects designated as poor readers had a reading grade equivalent of 2.09 years. The performance of the groups on the DRT, SRDT and PMT correlated very highly with the original good and poor reader diagnoses. In addition, an intercorrelation of the subtests of the SRDT revealed that the subtests were also highly related. "The independence of the subtests, which is essential in the identification of discrete abilities as implied in the description of the SRDT appears questionable [Cawley, 1966, p. 13]." The results of the study thus support the notion that there exists a tight circularity in this standardized process of reading diagnoses.

Cawley and Goodman (1968) examined the relationship between mental abilities and reading, language arts, and arithmetic achievement patterns. The investigators had special class teachers administer the SRA Primary Mental Abilities Test and the SRA Achievement Series to all primary (mean CA 131.69, SD 15.64) through junior high (mean CA 158.14, SD 17.26) special class students in an eastern city. The results of the Primary Mental Abilities measures and the achievement measures were then correlated. It was found that reading performance correlated highly with the Primary Mental Abilities subtests, the only exception being the space subtest. A further examination of the correlations revealed that the relationship between the Primary Mental Abilities measures and achievement was stronger for the intermediate students than for the primary students. Once again, it appears the tight circularity which exists for retarded pupils between mental abilities measures and diagnostic measures has been demonstrated.

While Cawley (1966) and Cawley and Goodman (1968) investigated and found a strong similarity in the information yielded by MA measures and by diagnostic measures, Schwarz and Cook (1971) questioned the actual validity of using MA measures as a standard for educational placement. Schwarz and Cook divided 499 mentally retarded special class students (CA 74 to 184 months, IQ range 51 to 82) from urban and rural settings into three comparison groups based on IQ (i.e., IQs 51-60, 61-70, 71-80). Either Binet or WISC IQ scores and Wide Range Achievement Test scores were obtained for all children. Individual results on arithmetic and reading subtests were then averaged and the resultant score was considered to represent the level of academic achievement of each child. Analysis revealed that all three groups of culturally deprived, retarded children showed a steady decline in achievement as compared to expected achievement. With increased age, the difference between expected and actual achievement proportionately increased. These results suggest that MA scores are not a satisfactory standard on which to base educational placement, especially for older children. Further,since MA scores and the scores obtained from standardized diagnostic tests correlate so highly, especially with increased age, the wisdom of using either of these types of tests for educational placement of EMR children would seem to be questionable.

A study by Ramanauskas and Burrow (1969), reported earlier in this paper, also questions the validity of using MA scores, specifically WISC profile scores for education diagnoses and placement. Ramanauskas and Burrow (1969) concluded, "The fact that a group having a 'retarded' WISC subtest profile can perform significantly better on a reading achievement measure than a group having an above average profile seems to put the predictive validity of such profiles for this kind of task into questionable light [p. 23]."

Budoff and Friedman (1964) questioned the validity of the IQ score as a true measure of the retarded child's learning potential and tested a completely unique approach to assessing the performance of the mildly and moderately retarded child. Their subjects, 32 institutionalized retarded adolescents (IQ range 42 to 78, CA range 16.5 to 19) with non-organic impairment, were paired on IQ and CA and randomly assigned to an experimental or control group. The investigation focused on two levels of IQ : the high ability group of experimental and control subjects had mean IQs of 70.13 and 70.25 and mean CAs of 17-7 and 17-10 respectively; the low ability group of experimental and control subjects had a mean IQ of 48.63 and CA of 18-1 respectively. Experimental subjects, through systematic coaching, were given the opportunity to learn how to perform on a nonverbal reasoning task. During coaching, subjects were shown how to systematically solve a series of block designs similar to, but different from, the test designs. The control subjects received no coaching. All subjects were individually administered an adaptation of the Kohs Test Series. The test was administered three times: six days before coaching, one day following coaching, and one month following coaching. While control subjects received no coaching, they took the tests in the same manner as experimental subjects to control for practice. An analysis of results indicated that both high and low IQ subjects positively increased their performance as a result of coaching and that the superior level of performance was maintained over the one-month delayed recall interval. Subsequent to the original study, a second group of subjects was administered the same treatment as the experimental group, with the exception of the coaching. This was an attempt to determine whether the significant effect attributed to coaching was due to the additional exposure of the experimental group to the coaching designs. The earlier results were confirmed; the coached group performed significantly higher. It is the authors' stated hope that the study will help to, "...lessen the tenacious reliance on the IQ score as an indicator of learning ability [Budoff and Friedman, 1964, p. 438]."

The research reported thus far appears to place the use of standardized test scores for diagnostic placement and teaching of the retarded into question. Further research is necessary to confirm these findings, to explore more appropriate use of present tests, and to develop new measures or sets of measures to aid in diagnosis and teaching. Hopefully, the Budoff and Friedman (1964) study will open the avenue for more creative approaches to assessment, which in turn will yield valuable information about the performance and/or potential for performance of retarded children. One such approach, the informal reading inventory, is considered next.

Informal reading inventory. The IRI is an informal diagnostic device which is of particular help to teachers in gathering information about a child's reading performance and determining the level at which instruction may most appropriately begin (Austin & Heubner, 1962; Beldin, 1970; McCracken, 1967; and Zintz, 1970). McCracken (1967) has stated that "the word informal may be misleading. The testing procedures and standards are set and fairly formal. Informal means that the testing is nonstandardized in the technical sense of test construction and administration. Informal does not mean relaxed or subjective [p. 80]." Some advantages which an IRI has over standardized measures are: (a) it is administered under more nearly normal classroom situations than standardized tests; (b) it does not have a built-in timing factor; and (c) it allows the teacher to test a child in the materials in which the child will later be instructed. While the IRI comes highly recommended, little research testing the validity of the instrument is available. Select studies which have investigated the validity and effectiveness of IRIs are reviewed below.

Botel, Bradley, and Kashuba (1970) attempted in a pilot study to establish concurrently the efficacy of: (a) a design developed to determine the validity of informal reading testing; and (b) three IRIs, The Standard Reading Inventory (SRI), the Botel Reading Inventory, and the Diagnostic Reading Inventory. The major premise on which the design was developed was that reading measures should be validated against one another. To test the premise, a stratified random sample of 174 fourth-grade pupils of below average, average, and above-average reading ability was administered each of the three informal reading inventories. Using the test information, instructional and functional reading levels were determined for all subjects on each of the three measures. Investigators also applied readability formulas to all of the testing selections to confirm the grade level of each selection. Correlations between reading inventories and readability measures; and intercorrelations among the inventories and readability measures were then calculated. All three tests were found to be highly correlated. The Diagnostic Reading Scale and the SRI correlated at the .88 level, and the former tests correlated with the Botel Inventory at .73 and .74 levels respectively. Based on the high correlations, the validity of the three tests was confirmed. The authors concluded that the proposed design was a feasible means for determining the validity of informal reading testing.

McCracken and Mullen (1970) investigated the validity of the IRI concepts of independent, instructional, and frustration reading levels. Subjects were 147 boys and girls from grades one through six and an additional 24 children from a combined second- and third-grade class.

Subjects were administered two informal reading inventories, a standardized achievement test and a test of mental maturity. The results of the tests were then compared. It was the authors' contention that, "One way to demonstrate the validity of a test is to compare it to another test which purports to measure the same skill or skills. If one of the measures has been validated previously by an independent means, the similarity or difference in the two measurements can be interpreted to support or not to support the validity of the newer or non-validated instrument [p. 108]." The analysis compared the mean levels of achievement which subjects obtained on the Stanford Achievement Tests, a validated group of instruments, with the instructional levels of the two IRIs. Correlations between the instruments were significant at the .01 level of confidence. Thus, the study offers strong support for the concurrent validity of the instruments involved.

A somewhat different approach was taken by Daniel (1962) who was not interested in testing the validity of reading tests, but was concerned with their use for placing an individual child in a classroom reading group. Daniel (1962) compared two standardized reading tests and an informal reading inventory against teacher-established student reading levels. In the experimental class the same three teacher-established reading levels or groups: (a) had been assigned by two separate teachers; and (b) had been in existence for at least five months. Since often a class is divided into only three reading levels or groups for functional reasons, the teacher presently in charge of the class was asked to regroup the children in the manner in which she felt they could most benefit from instruction, irrespective of practical classroom considerations. Subjects were 35 third-grade children from the same classroom. The children ranged in CA from 7.8 to 9.4; they had an MA range of 7.7 to 10.9 and an IQ range of 91-138. The investigator found that when the results of the Gates Advanced Primary Reading Test were adapted by subtracting a constant of 2.0, they agreed most nearly with the teacher placements. The results of the standardized test thus placed children two grade levels above their instructional level, but these results were capable of being adapted for classroom instructional grouping by a simple subtraction process. Daniel (1962) added that the results from the IRI were also acceptable for placing children in reading groups and had the advantage of providing more diagnostic information.

Sipay (1961) attempted to determine what, if any, difference existed between the levels of reading achievement yielded by standardized tests and by an IRI. Sipay (1961) administered three standardized reading tests and two equivalent forms of an IRI to a group of 202 fourth-grade students. A comparison of the results from the four tests found that the three standardized tests, when compared to the IRI, tended to overestimate the children's instructional level by one or more years. The author concluded that the results of standardized tests were not the most effective guides for choosing suitable material for reading instruction.

On the premise that, "Standardized group reading tests do not yield sufficient information for the diagnosis of reading [p. 366]," McCracken (1962) compared the grade level ratings secured from the

Iowa Test of Basic Skills, Form 1, with the ratings obtained from an IRI. The author was careful to note that his purpose was not to suggest that one particular standardized test was inadequate. To the contrary, the test selection was made because the test was an excellent one. The experimental population was composed of two sixth-grade classes of 56 pupils, 37 girls and 19 boys, with a mean CA of 11.2 and an IQ range of 82 to 148. All subjects were administered the Iowa Test of Basic Skills and an IRI. The analysis found that the Iowa Test of Basic Skills rated most children higher in both comprehension and vocabulary than the IRI. The average difference between the instructional reading-comprehension scores yielded by the two tests was 2.3 years. The average difference between instructional word-recognition scores yielded by the two tests was 1.0 years. The author suggested that quite possibly group standardized reading tests allow children to reread selections in search of answers or to choose correct answers on the basis of elimination and selection. He stated that standardized test scores, "...would place 93% (52 pupils) of the children in a book which is too hard for pupil and teacher comfort [p. 368]."

In conclusion, it seems there is evidence both in the form of expert opinion (Austin & Heubner, 1962; Beldin, 1970; McCracken, 1967; and Zintz, 1970) and research (Botel, Bradley, & Kashuba, 1970; Daniel, 1962; McCracken, 1962; McCracken & Mullen, 1970; and Sipay, 1961) which supports the viability of using an IRI to obtain diagnostic information about children. The information which is obtained from an IRI is of particular help to teachers in identifying materials appropriate to the instructional reading level of children. The IRI, however, is not suggested as a substitute for other standardized tests; rather it is proposed as an excellent source of supplemental information helpful to classroom teachers.

Summary

The research reviewed in this chapter has dealt with reading characteristics of the retarded, effectiveness of methods of teaching reading to the retarded, the ability of teachers to diagnose the reading performance of children, and assessment and diagnosis. The latter topics considered the adequacy of using standardized instruments for educational diagnosis of retarded children and explored the merit of using an informal assessment technique, the IRI, as a supplemental source of diagnostic information.

A number of studies reported that special class retarded youngsters, were functioning below their achievement potential (Bliesmer, 1954; Dunn, 1953, 1954; Dunn, 1956). However, when investigators attempted to identify a common factor or sets of factors which might account for the low reading achievement of the retarded, they met with little success. Studies comparing the reading performance of brain injured mentally retarded children to the performance of non-brain injured retarded children found no significant performance difference to exist between the two groups. Rather than revealing similarities in the performance of retarded children, these studies served to highlight the heterogeneity of performance which exists within the groups (Bensberg, 1953; Capobianco, 1956; Capobianco & Miller, 1958; Cegelka & Cegelka, 1970). Studies comparing the performance of adequate and inadequate readers have also found retarded subjects exhibit a wide range of reading performance. Additional studies have reported that the type and variety of reading errors made by retarded readers were similar to the type and variety of errors made by nonretarded readers. (Cawley, Goodstein & Burrow, 1968; Ramanauskas & Burrow, 1969; Reger, 1964; Shepherd, 1967). Thus, research investigating the reading characteristics of the retarded has failed to identify a pattern of performance which typifies the retarded reader. In contrast, these studies have found that reading is a highly individualized process with the same factor often being alternately present in the performance of good and poor readers.

From these results, it would follow that for a teaching approach to cope with the performance differences that exist in the population it services it would have to be highly individualized. Research investigating the effectiveness of a variety of reading methodologies leads to a similar conclusion.

In the present review, none of the studies investigating reading methodologies found one approach to be consistently more effective than another. No study was found, however, which investigated the effectiveness of using an individualized diagnostic teaching approach with the retarded. Thus, based on research investigating both: (a) the reading characteristics of the retarded; and (b) the effectiveness of methodological approaches to teaching reading to the retarded; the implementation and investigation of a diagnostic approach to the teaching of reading would appear to be warranted.

A logical prerequisite to an individualized diagnostic teaching approach is assuring that teachers are capable of accurately assessing a student's reading ability so that instruction might be prescribed. Studies reviewed in the present chapter illustrate the fact that teachers are often very weak in diagnostic skills, (Burnett, 1963; Emans, 1965). In fact, a number of studies demonstrated that teachers are often unable to accurately perform the simple task of identifying a pupil's instructional level (Brown, 1967; Moburg, 1973),a task most experts will agree is basic to diagnosis (Austin & Heubner, 1962; Call & Feldman, 1966; Harris & Smith, 1972). More encouraging are the findings of Moburg (1973) and Kelly (1967) who demonstrated that teachers weak in basic diagnostic skills can benefit from training in the area of assessment and as a result develop greater diagnostic proficiency.

Since accurate diagnosis is based on assessment, the identification of assessment instruments which yield the most correct, complete information available about an EMR child is an essential task. In special education, the instruments most commonly used for diagnosis and placement are standardized tests of mental ability and performance (Budoff, 1964). For that reason, the present chapter considered studies which investigated the validity of using these instruments as predictors or interpreters of the performance of retarded children. It was found that standardized measures: (a) tended to overestimate the actual performance of retarded children, the overestimate being more apparent with older children (Schwarz, 1971); and (b) tended to yield information which had only limited diagnostic value (Budoff, 1964; Cawley, 1966; Cawley & Goodman, 1968; Ramanauskas & Burrow, 1969).

Thus, if a diagnostic approach to teaching reading is to be adopted, it will be necessary to identify means by which a teacher may supplement the information about a child which is available. One means which has been recommended as very helpful in acquiring supplemental diagnostic information about a child's reading performance is an IRI. (Austin & Heubner, 1962; Beldin, 1970; McCracken, 1967; Zintz, 1970). While experimental research testing the validity of an IRI is limited, the present section has reviewed a number of studies which indicated that IRIs are a viable means of obtaining supplemental information about a child's reading performance. (Botel, Bradley, & Kashuba, 1970; Daniel, 1962; McCracken, 1962; McCracken & Mullen, 1970; Sipay, 1961).

Review and Evaluation of Existing Modules

Thus far it has been established that: (a) being able to identify the instructional reading level of an EMR child is a necessary competency for special education teachers to possess; (b) while most teachers do not possess this skill, training can facilitate its development; and (c) the IRI is an effective assessment device to use when determining instructional reading levels. The final step in the development of an instructional module was a field search for existing modules which accomplished the purpose for which the proposed module was being developed.

The Thiagarajan et al. (1974) ID model contained a recommended, systematic set of procedures to be followed when attempting to locate and evaluate existing instructional materials. These procedures are: first, perform an ERIC search; second, examine various media references--

bibliographies, directories, and catalogs; third, read the description of the material contained in the reference, eliminating those which are unsuitable and ordering those which sound appropriate; and last, critically review the selected instructional materials. The present project followed these specified procedures with the following results.

First, the ERIC search yielded only a limited number of references. A review of the summaries accompanying the ERIC references revealed that none of the references were applicable to the present project.

Second, using the instructional media references suggested by Thiagarajan, et al. (1974) as a guide, an extensive review of available modules was performed. The review yielded two modules, the descriptions of which indicated that they warranted a closer examination. The two modules, Fraser (1972) and the Florida Department of Education (1970), were obtained and a thorough appraisal of their content was initiated.

Neither module was found to be appropriate for use in the present project. Of the two modules, the one titled, Using Informal Diagnostic Tests of Reading Skills, came closest to being suitable for use; however, it was rejected for the following reasons. First, the entry requirement of the module, the completion of an earlier module, was felt to be too demanding. It was concluded that teachers could learn in one module to use an IRI to identify instructional reading levels. Second, while the module was stated to be self-instructional, in essence it was not. Trained resource people were required to administer almost all tests. Finally, the stated time it would take an individual to complete the module was 15 hours--much more than the desired four to five hours, the time limit specified for the module proposed in Chapter 1.

The Fraser module, Evaluating Reading Performance, also failed to meet the criteria set for the current study. Of major importance was the fact that the emphasis of the module was on reading assessment in general. This included formal assessment with standardized tests, and informal assessment, of which the IRI was the example. Second, the module did not devote adequate time to coding and scoring an IRI. Third, the module used a laboratory supervisor and thus was not entirely self-instructional. Finally, the modules' estimated time of completion was eight hours, again substantially over the required four to five hours specified in Chapter 1.

Summary

After a systematic review of instructional media bibliographies, references, indexes, catalogs, and guides, two instructional modules were found which appeared to accomplish the purpose for which the module described in Chapter 1 was proposed. A thorough review of the modules, however, revealed that they did not meet the criteria outlined in Chapter 1.

Thus, the results of a needs assessment study; a review of the literature; and a critique of existing modules established the need for a module to train teachers to use an IRI for reading diagnoses with exceptional children. Chapter III examines the tasks and concepts involved in mastering the subject matter contained within the module.

CHAPTER III

ANALYSES AND OBJECTIVES

Chapter III introduces the task of developing the proposed instructional module. The first developmental step undertaken was the performance of both task and concept analyses. Information gained from these analyses was then used to determine the instructional objectives for the module. The results of the analyses, together with the derived instructional objectives, subsequently served as the basic framework around which the remainder of the developmental process proceeded.

Task Analysis

The purpose of the task analysis was to divide the proposed instructional skill into its component behaviors. This analysis later served as the basis for: (a) determining the sequence of instruction and the instructional format of the module; (b) constructing measurement instruments; and (c) deciding upon the instructional media and materials to be used (Thiagarajan, et al., 1974).

Thiagarajan, et al. (1974) suggest three alternate methods which may be used to perform a task analysis. The current project used a combination of two of these methods: reference to textual materials and the performance of the task by the instructional developer. The results of the analyses are presented in Figures 3 through 6 . As indicated by the figures, the completed analyses afforded a succinct description of the hierarchy of behaviors which composed the ultimate task of using an IRI to identify the instructional reading levels of ex-

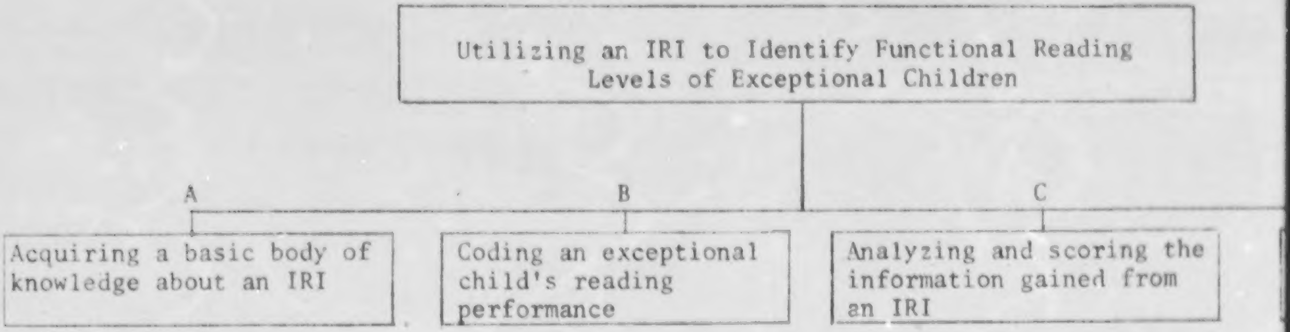
Utilizing an IRI to Identify Functional Reading Levels of Exceptional Children
A
B
C
Acquiring a basic body of knowledge about an IRI
Coding an exceptional child's reading performance
Analyzing and scoring the information gained from an IRI

Figure 2

Analysis of the Task of Utilizing an IRI

A further breakdown of A, B, C and D may be found in Figures 3, 4, 5, and 6 respectivel

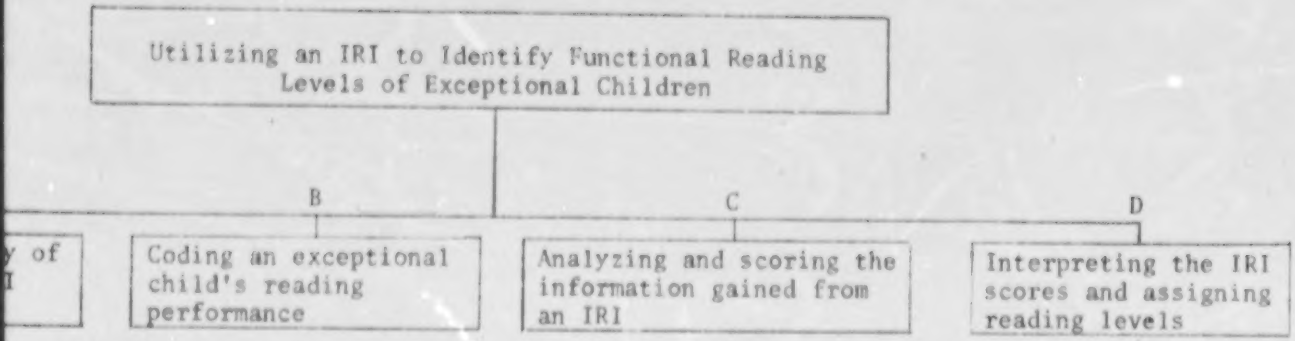
Utilizing an IRI to Identify Functional Reading Levels of Exceptional Children
B
C
D
y of
I
Coding an exceptional child's reading performance
Analyzing and scoring the information gained from an IRI
Interpreting the IRI scores and assigning reading levels

Figure 2

Analysis of the Task of Utilizing an IRI

f A, B, C and D may be found in Figures 3, 4, 5, and 6 respectively.

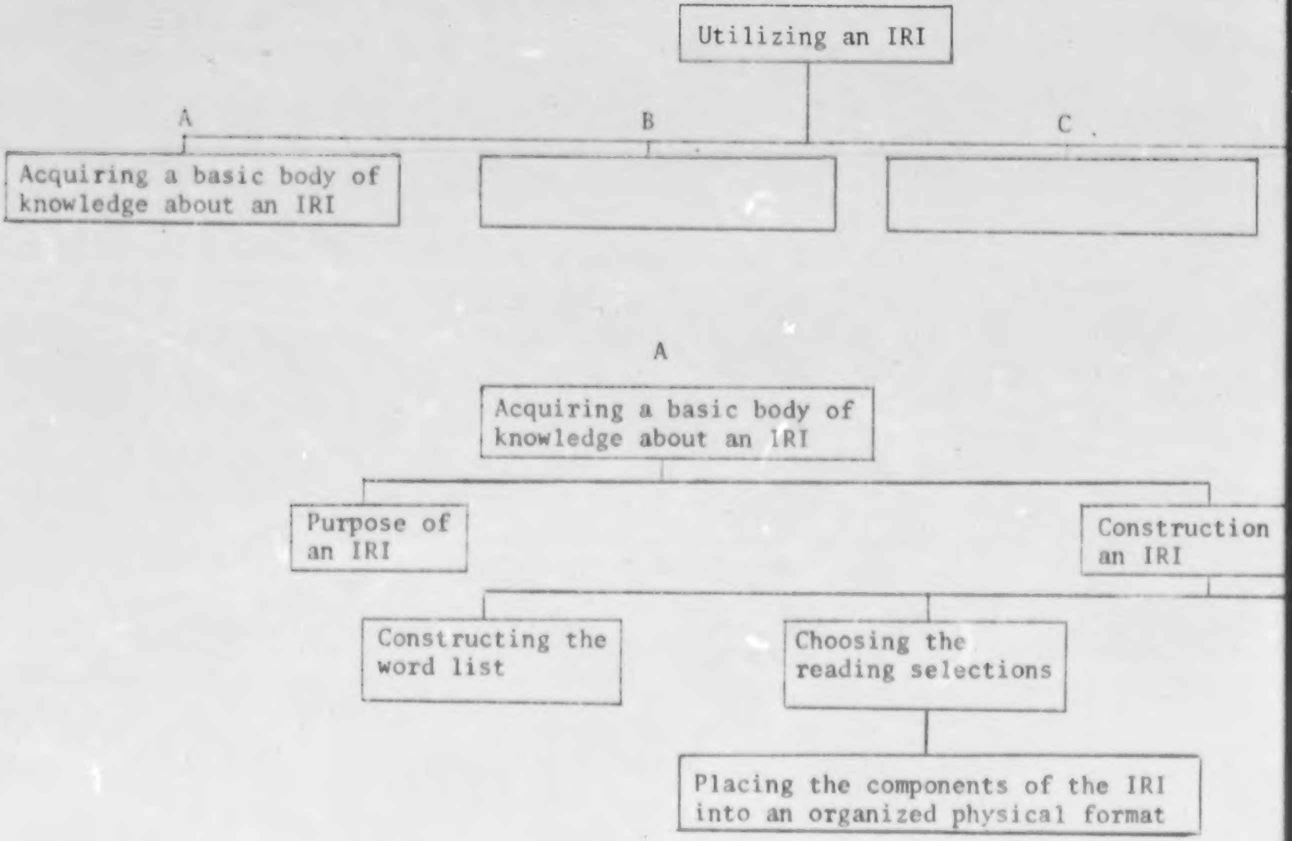
Utilizing an IRI
A
B
C
Acquiring a basic body of knowledge about an IRI
A
Acquiring a basic body of knowledge about an IRI
Purpose of an IRI
Construction an IRI
Constructing the word list
Choosing the reading selections
Placing the components of the IRI into an organized physical format

Figure 3

Analysis of Subtask A of Utilizing an IRI

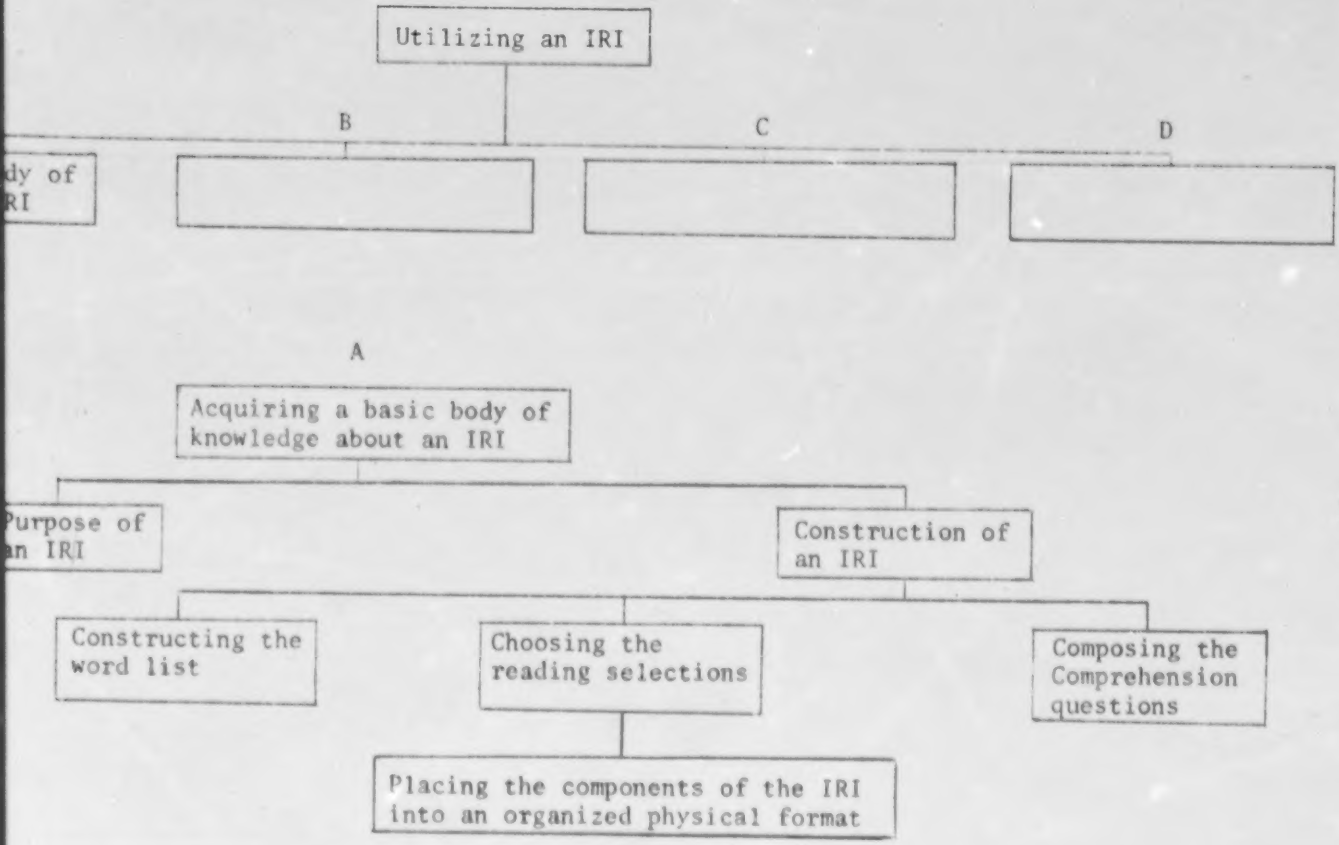
Utilizing an IRI
B
C
D
dy of
RI
A
Acquiring a basic body of knowledge about an IRI
Purpose of an IRI
Construction of an IRI
Constructing the word list
Choosing the reading selections
Composing the Comprehension questions
Placing the components of the IRI into an organized physical format

Figure 3

Analysis of Subtask A of Utilizing an IRI

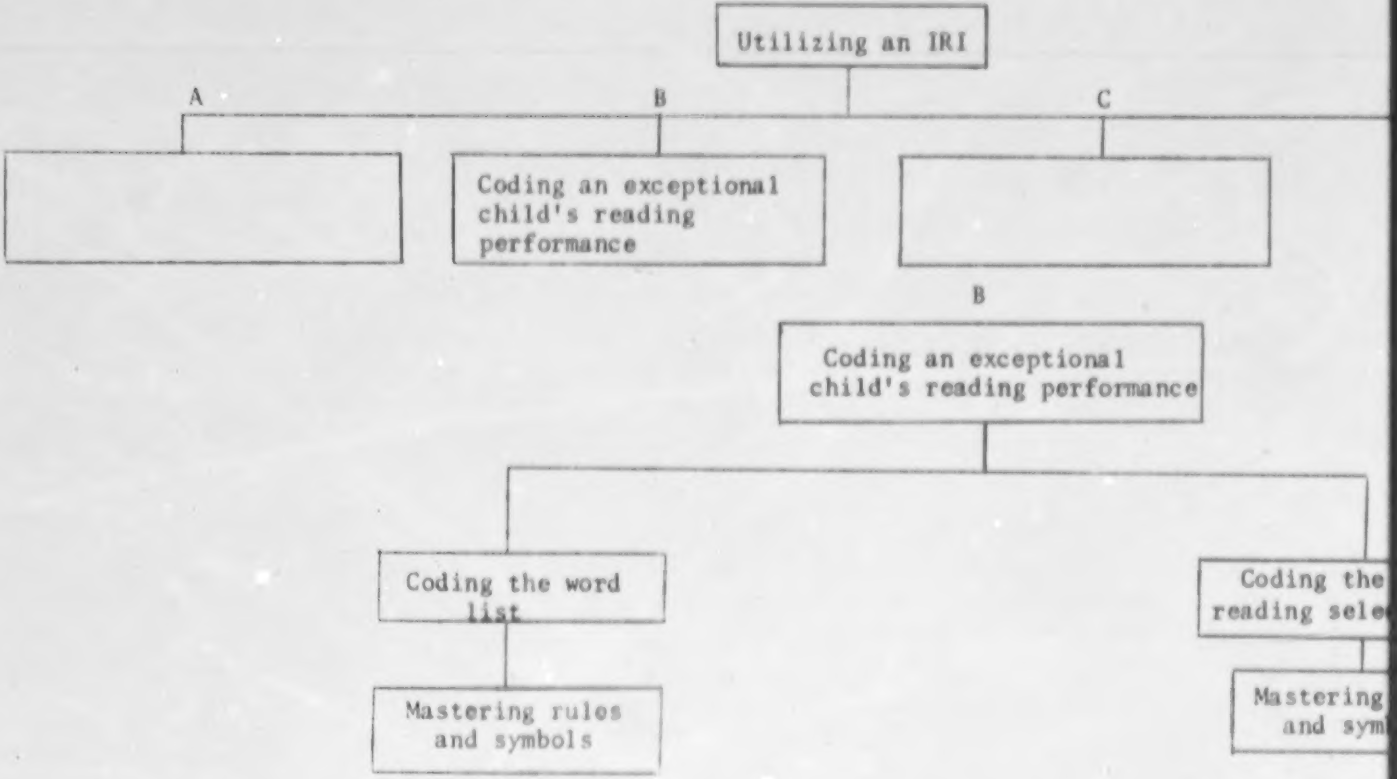
Utilizing an IRI
A
B
C
Coding an exceptional child's reading performance
B
Coding an exceptional child's reading performance
Coding the word list
Mastering rules and symbols
Coding the
reading sele
Mastering
and sym

Figure 4

Analysis of Subtask B of Utilizing an IRI

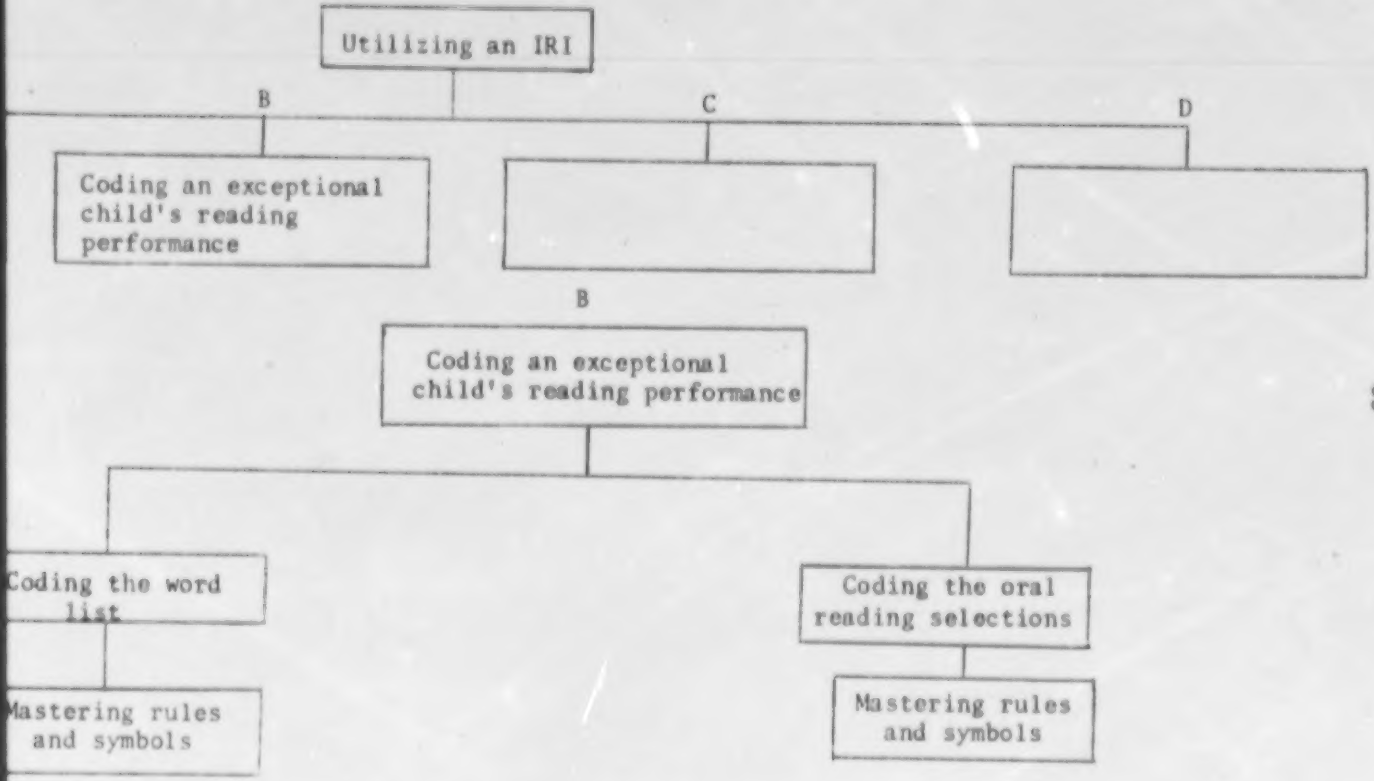
Utilizing an IRI
B
C
D
Coding an exceptional child's reading performance
B
Coding an exceptional child's reading performance
Coding the word list
Mastering rules and symbols
Coding the oral reading selections
Mastering rules and symbols

Figure 4

Analysis of Subtask B of Utilizing an IRI

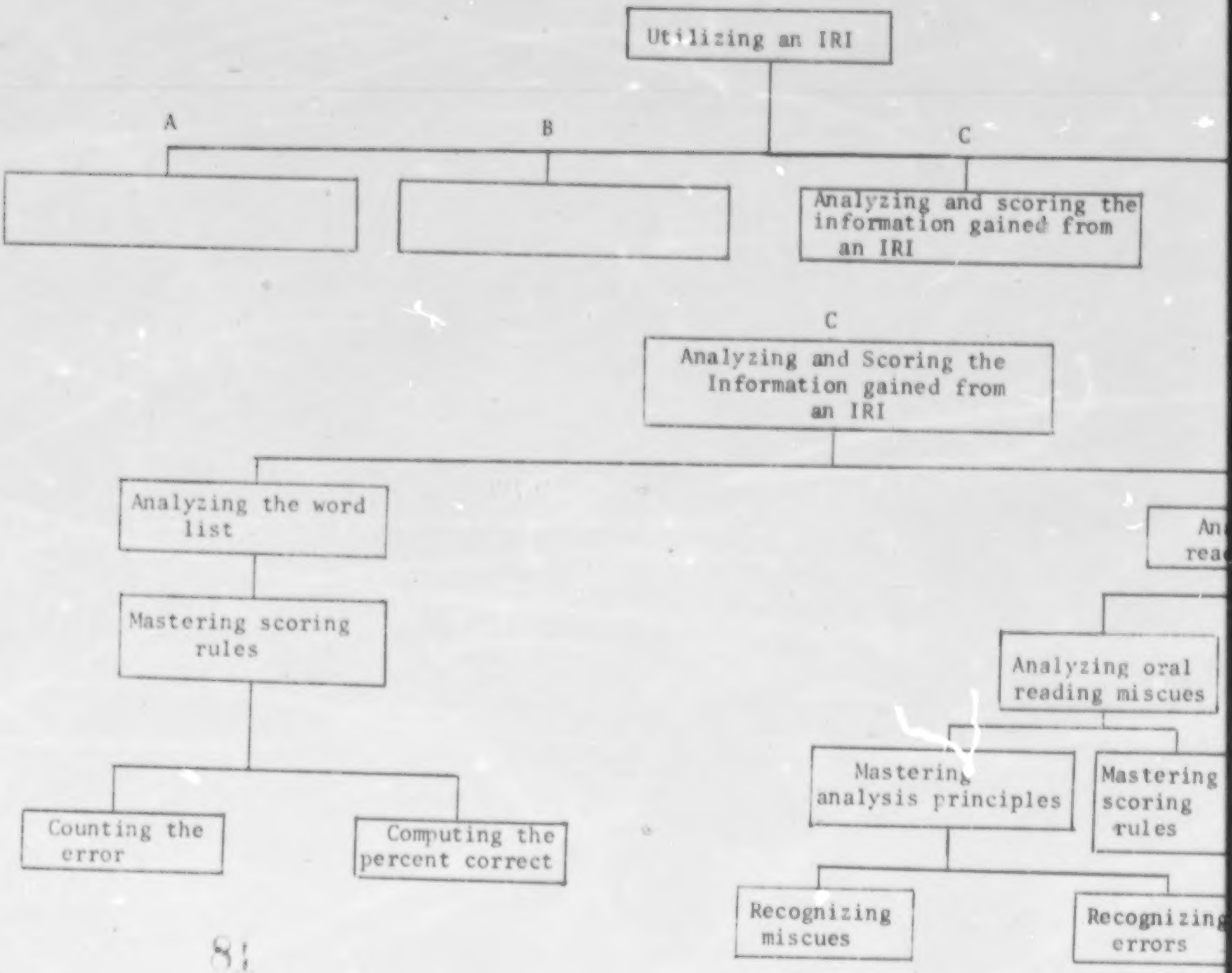
Utilizing an IRI
A
B
C
Analyzing and scoring the information gained from an IRI
C
Analyzing and Scoring the Information gained from an IRI
Analyzing the word list
Mastering scoring rules
Counting the error
Computing the percent correct
An
rea
Analyzing oral reading miscues
Mastering analysis principles
Mastering scoring rules
Recognizing miscues
Recognizing errors

Figure 5

Analysis of Subtask C of Utilizing an IRI

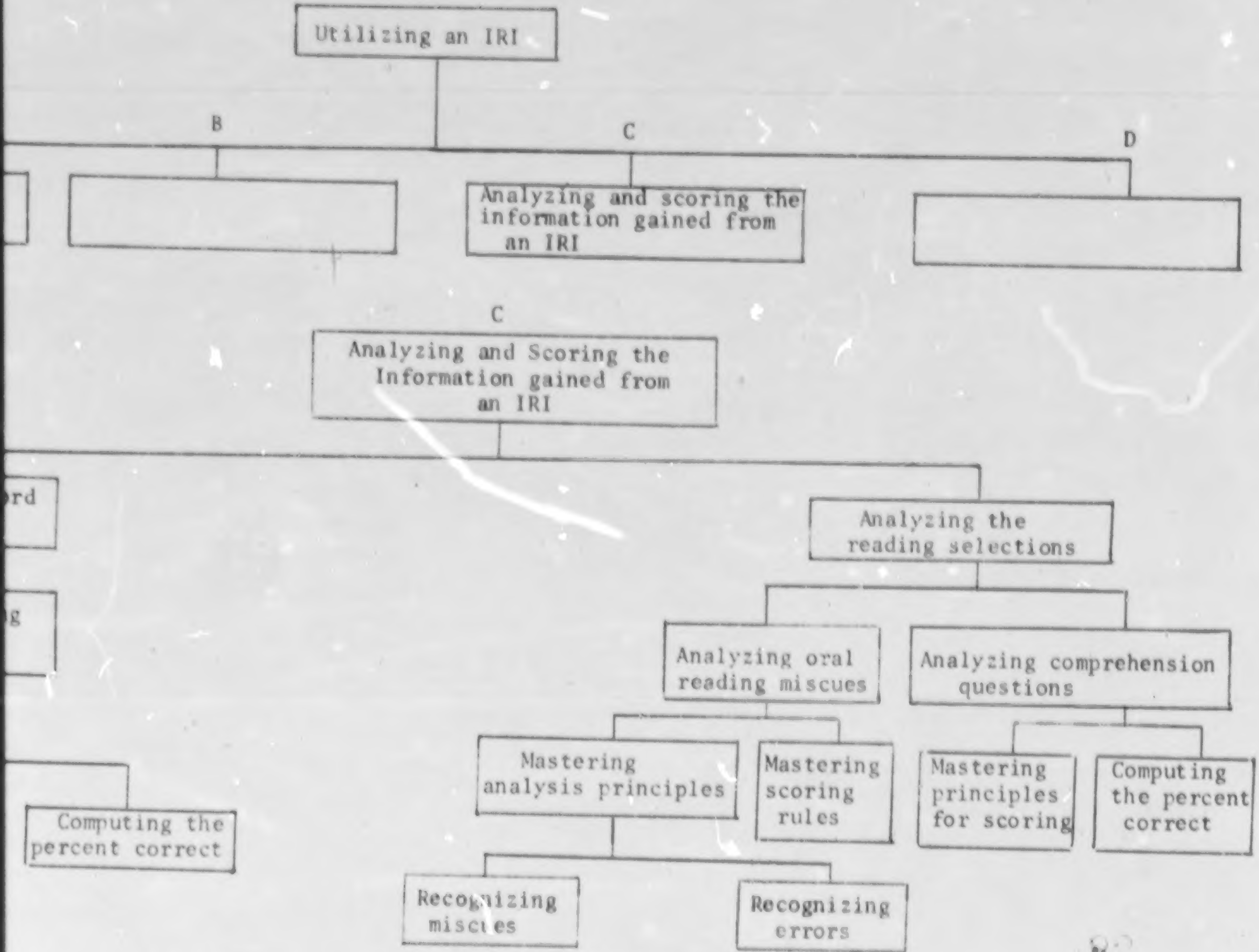
Utilizing an IRI
B
C
D
Analyzing and scoring the information gained from an IRI
C
Analyzing and Scoring the Information gained from an IRI
ord
ng
Analyzing the reading selections
Analyzing oral reading miscues
Analyzing comprehension questions
Mastering analysis principles
Mastering scoring rules
Mastering principles for scoring
Computing the percent correct
Computing the percent correct
Recognizing miscues
Recognizing errors

Figure 5

Analysis of Subtask C of Utilizing an IRI

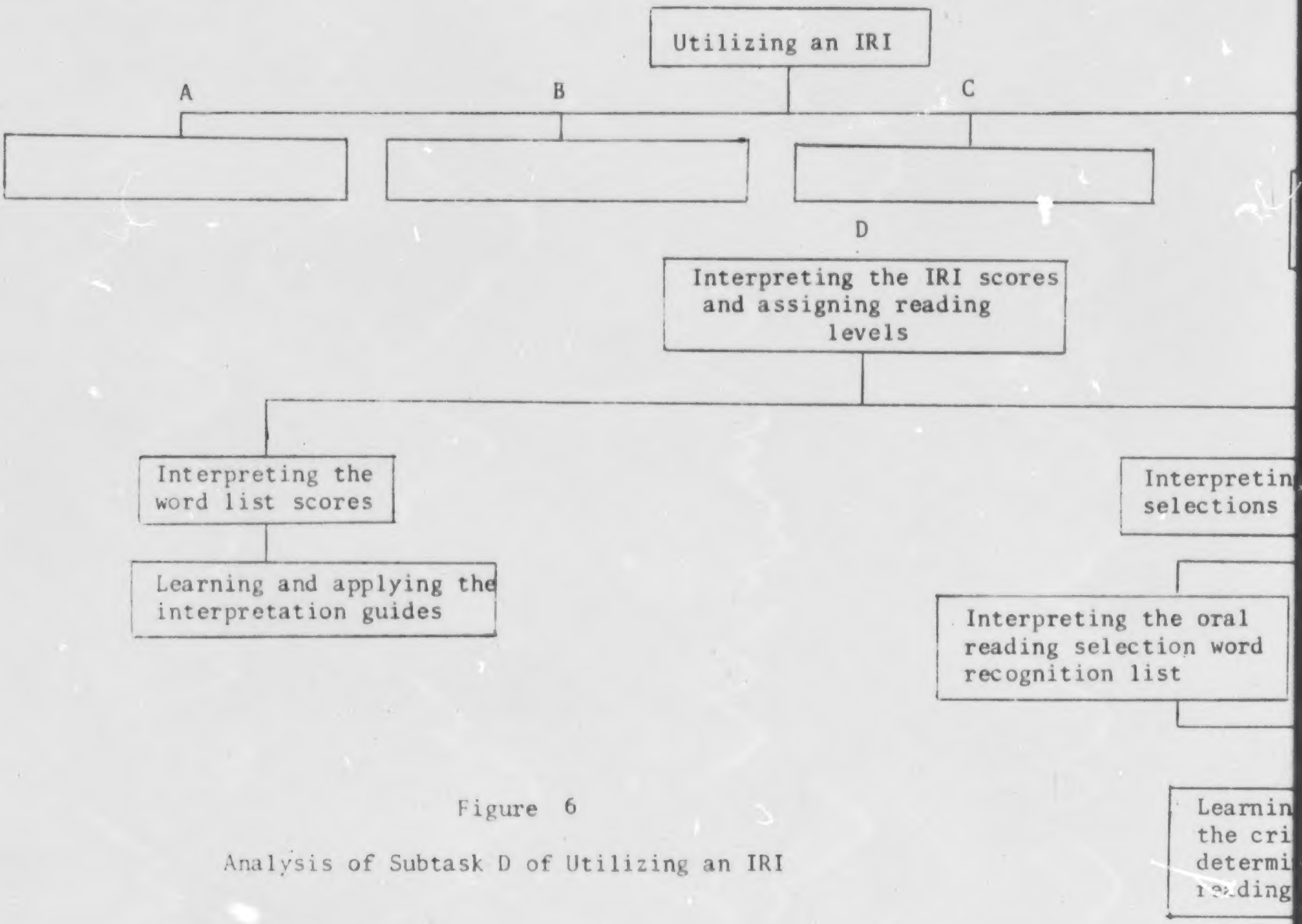
Utilizing an IRI
A
B
C
D
Interpreting the IRI scores and assigning reading levels
Interpreting the word list scores
Learning and applying the interpretation guides
Interpretin
selections
Interpreting the oral reading selection word recognition list
Learnin
the cri
determi
reading

Figure 6

Analysis of Subtask D of Utilizing an IRI

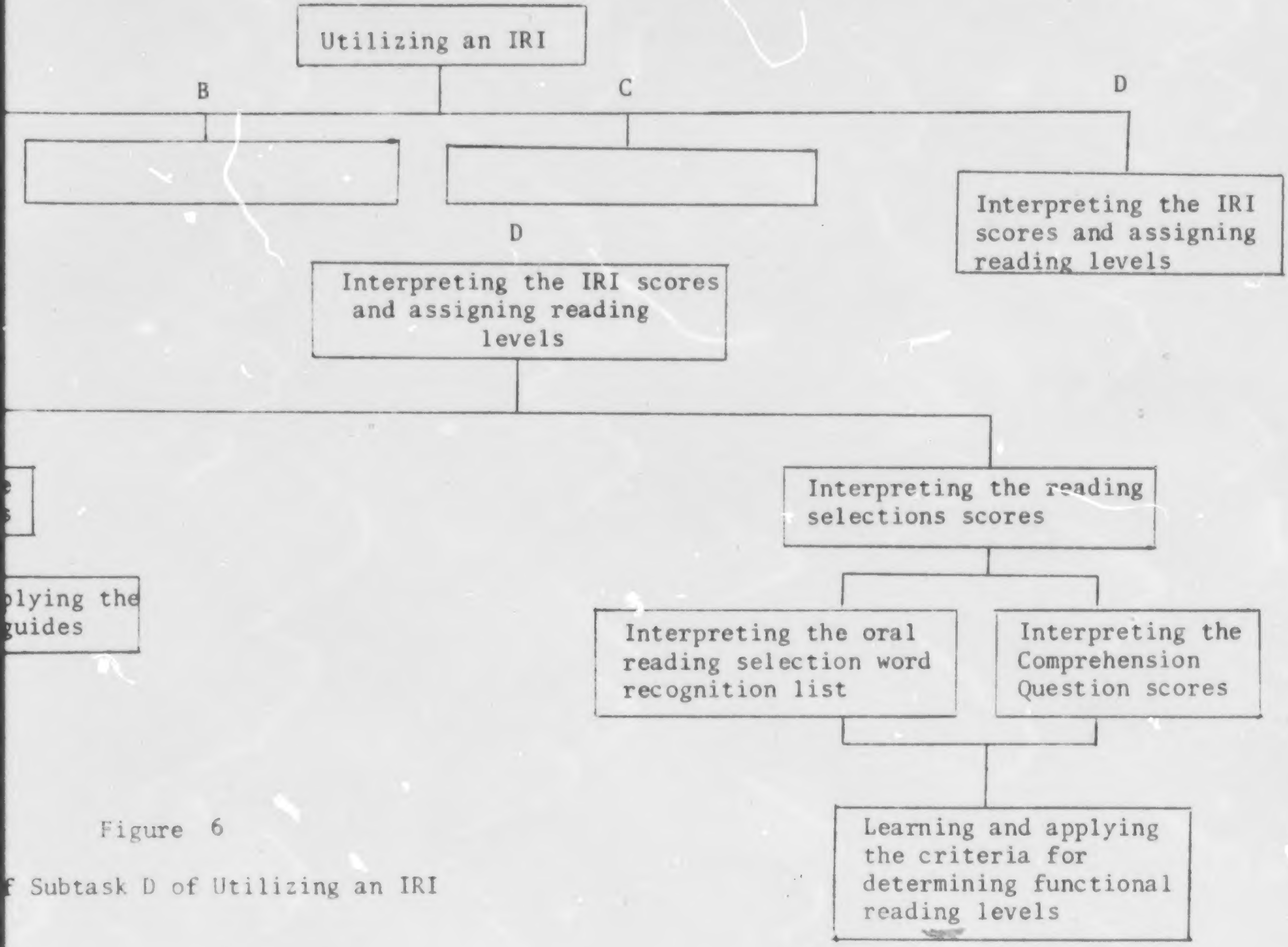
Utilizing an IRI
B
C
D
Interpreting the IRI scores and assigning reading levels
D
Interpreting the IRI scores and assigning reading levels
e
s
plying the
guides
Interpreting the reading selections scores
Interpreting the oral reading selection word recognition list
Interpreting the Comprehension Question scores
Learning and applying the criteria for determining functional reading levels

Figure 6

f Subtask D of Utilizing an IRI

ceptional children. An in-depth examination of the hierarchy revealed the existence of certain concepts which trainees would need to master if they were to develop the proposed skill. The second step was then to analyze these concepts.

Concept Analysis

A concept analysis enables the instructional developer to, "...analyze a set of concepts which are pertinent to the teaching of exceptional children, arrange them in hierarchies, and identify the critical and irrelevant attributes of each [Thiagarajan, et al., 1974, p. 43]."

The two major concepts analyzed in the present project were: (a) reading miscues and (b) reading errors. These two concepts were divided into their component parts and each part was analyzed individually. In total, eight types of reading miscues and five types of reading errors were analyzed (see Figure 7). The figures found in Appendix B contain the individual analyses of each of these 13 concepts.

The concept analyses of the individual reading miscues and reading errors, (Appendix B) were essential, for they yielded a set of criteria (relevant and irrelevant attributes) which could be used to decide whether to classify a specific example as a miscue or an error.

Instructional Objectives

Clearly defined instructional goals or objectives are essential to the developmental process. Mager (1962) states that, "When clearly defined goals are lacking, it is impossible to evaluate a course or program efficiently, and there is no sound basis for selecting appropriate

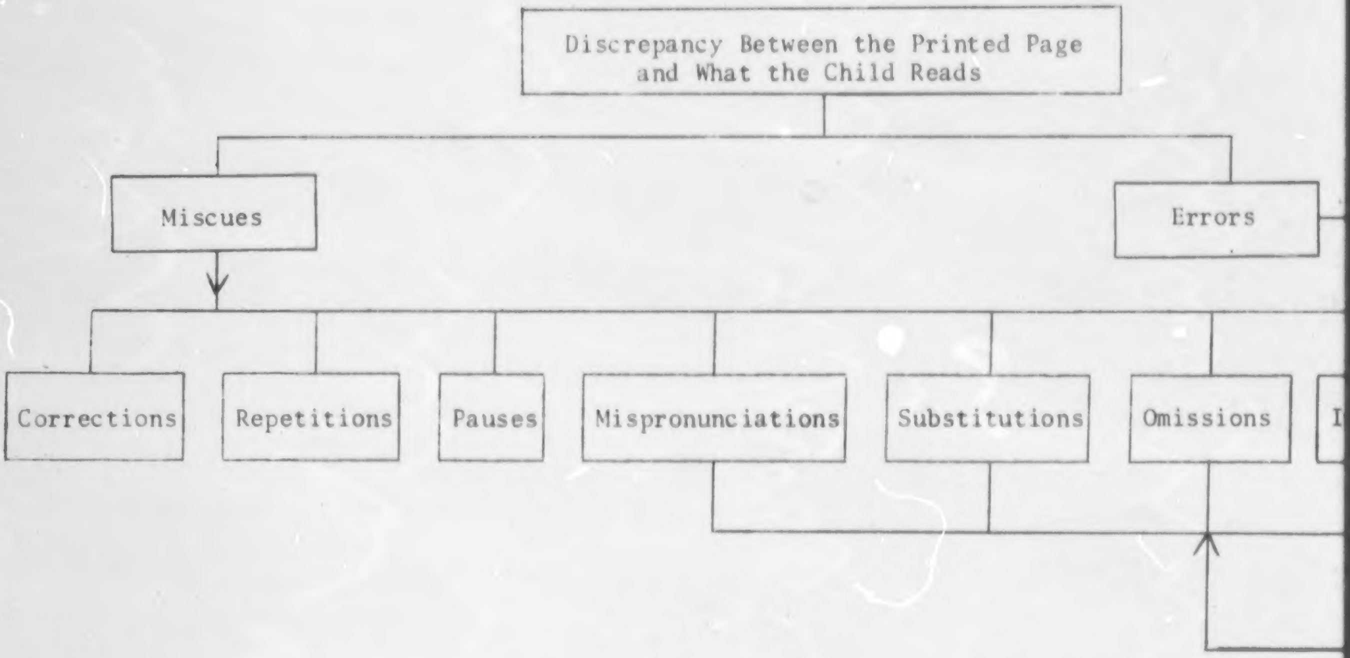
Discrepancy Between the Printed Page and What the Child Reads
Miscues
Errors
Corrections
Repetitions
Pauses
Mispronunciations
Substitutions
Omissions
I

Figure 7

Hierarchy of Reading Miscues and Reading Errors

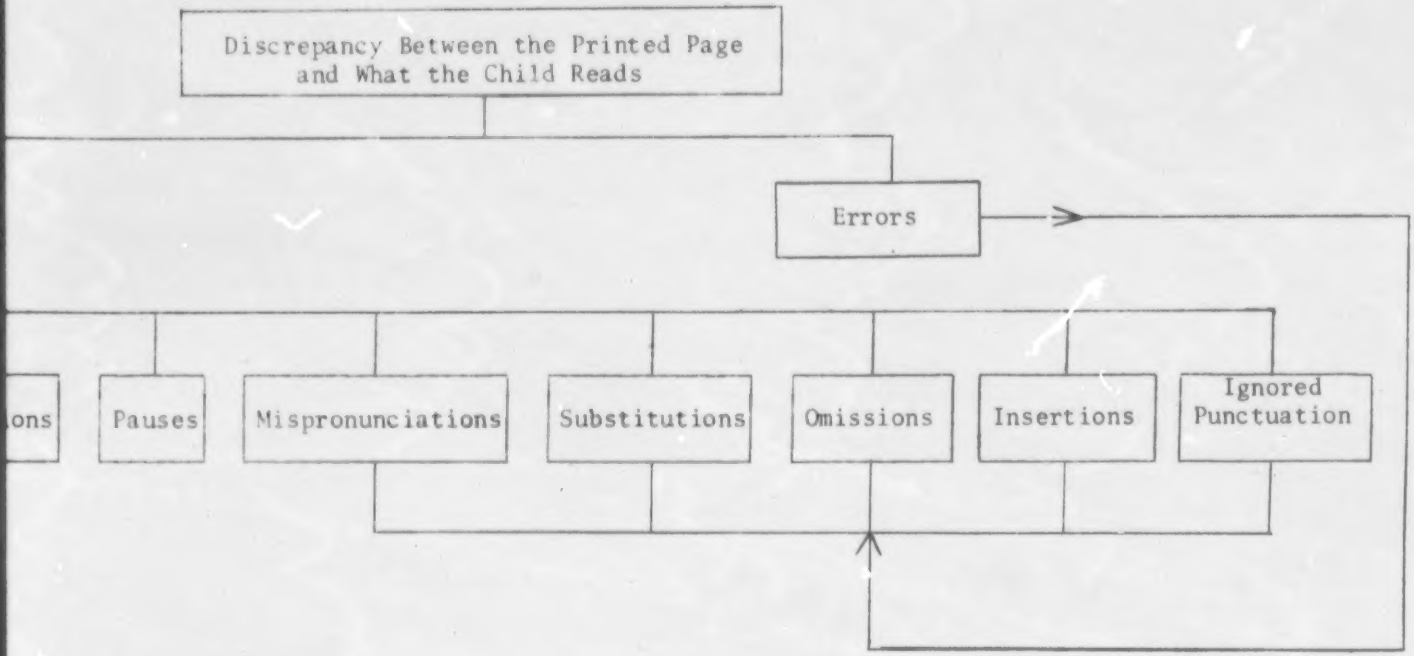
Discrepancy Between the Printed Page and What the Child Reads
Errors
ons
Pauses
Mispronunciations
Substitutions
Omissions
Insertions
Ignored Punctuation

Figure 7

Hierarchy of Reading Miscues and Reading Errors materials, content, or instructional methods [p. 3]." Thus, based upon the information gained from the task and concept analyses, a set of instructional objectives was designed for the present module. The objectives specified terminal behaviors which trainees were expected to exhibit after having gone through the module. As Gronlund (1970) points out,

> "Stating instructional objectives as learning outcomes contributes to the instructional process in the following ways.
>
> 1. It provides direction for the instructor, and it clearly conveys his instructional intent to others.
>
> 2. It provides a guide for selecting the subject matter, the teaching methods, and the materials to be used during instruction.
>
> 3. It provides a guide for constructing tests and other instruments for evaluating student achievement [p. 4]."

Objectives for the IRI Module. To insure successful completion of the module and thereby demonstrate the ability to utilize an IRI to determine the instructional reading level of exceptional children, trainees were expected to master the following instructional objectives:

Objective I	Demonstrate the mastery of a basic body of knowledge about an IRI by scoring 85% or better on a criterion test.
Objective II	Code an audiotape of an exceptional child reading a basic word recognition list with 97% accuracy.
Objective III	Code an audiotape of an exceptional child reading an IRI selection and receive an accuracy rating of 95% or better when compared to the coding of an expert.

Objective IV	Analyze an oral reading selection, differentiating the errors from the miscues and accurately scoring them. Trainees must score 85% or better on a criterion exercise.
Objective V	Utilizing information from an IRI word list, determine the level on which to begin testing a child to determine his/her instructional reading level. Trainees must score 90% or better on the criterion exercise.
Objective VI	Determine the child's instructional reading level, based on information obtained from the IRI. Trainees must score 90% or better on the criterion exercise.

Summary

The framework upon which the instructional module was built was constructed by means of task and concept analyses. The first portion of Chapter III afforded an explanation of how and why these analyses were performed and presented the results of the analyses in graphic form. The second portion of Chapter III discussed the process of transforming the information contained in the task and concept analyses into instructional objectives and enumerated the instructional objectives of the IRI module. During the remainder of the developmental process these objectives, derived from the task and concept analyses, served as organizers around which the IRI module was constructed. Chapter IV details the construction of the module.

Chapter IV

Module Development

Based upon the information obtained from the task and concept analysis and guided by the instructional objectives for the module, the developmental process continued. Chapter IV outlines the construction of criterion-referenced tests and tasks, the selection of media and format, and the design of prototype materials.

Constructing Criterion-Referenced Tests

A criterion-referenced test is an instrument used for two purposes; diagnosis and final evaluation. When used diagnostically, the instrument provides information helpful in determining whether a trainee needs further instruction in one or more aspects of the instructional material. When used for final evaluation, it indicates the degree to which a trainee has mastered the instructional material. The term "criterion-referenced" indicates that the test has a predetermined criterion (level of excellence) which a trainee is expected to achieve and, until the trainee has reached the "criterion," he/she is not said to have mastered the given material. Criterion tests may have a verbal and/or performance component. In the case of the verbal component, a trainee's behavior is usually measured against an established body of knowledge or predetermined answer. In the case of the performance component, the trainee's behavior is measured against a behavioral model or the performance of experts.

The present module was divided into four sections and utilizes both verbal and performance-based measures. The instructional content of each section determined whether the test for that section would have a verbal or a performance orientation. Section I, which emphasized the theory behind and construction of an IRI, employed a criterion test. Section II, which offered training in coding an exceptional child's performance on an IRI, employed a criterion task. Sections III and IV offered instruction in scoring and interpreting the information from an IRI and used paper and pencil simulated situations as their criterion measures. The criterion tests may be found interspersed within the module found in Appendix C. Since the module was self-instructional, the criterion exercises served both a diagnostic and an evaluative purpose. If trainees attained a prescribed level of mastery on a criterion exercise, they advanced in the module. If they failed to attain the prescribed level of mastery, instructions which would aid them in reaching criterion were given, (see Appendix C, scoring keys for criterion exercises).

Media Selection

In choosing the media for the present module, the primary consideration was to enhance the learning of the intended skill. A review of the learner, concept, and task analyses facilitated this process. The review identified a set of attributes that were designated as essential elements for the media to possess. Using these attributes as a guide, the media for the module were selected. The task was accomplished by matching the desired media attributes to the media which possessed these specific capabilities. The figures on the following pages illustrate the above-described process.

Format Selection

Instructional format refers to a combination of media, teaching strategies, and utilization techniques. The basic self-instructional format of the present module was a predetermined requirement in the design of the module (see Chapter I). Within the self-instructional format, however, a variety of media, information dissemination, and learning strategies was employed. The present module used a combination of the following: (a) adjunct programming; (b) audiotutorial materials; (c) textbook excerpts and handouts; and (d) printed simulations of the results of testing children on an IRI.

As previously described, the module was divided into four sections. While each section was designed to be self-instructional, the content of the individual sections determined what formats were to be employed. Section I of the module used adjunct programming to organize and present a body of theoretical information concerning an IRI. The information was presented in the form of a study outline, printed handouts, textbook excerpts, sample IRI, criterion-referenced tests, and instructions for further study if the predefined criterion level for the test was not met. Section II used printed instructions for coding a child's oral reading performance, study exercises designed to develop mastery of coding rules, and a combination of simulated and real samples of the oral reading performance of exceptional children. Similarly to Section I, Section II also provided instructions and

TARGET STUDENTS:

Special education teacher trainees.

INSTRUCTIONAL OBJECTIVE 1:

1. The teacher trainee shall demonstrate the mastery of a basic body of knowledge about an IRI by scoring 85% or better on a criterion test.

MEDIA ATTRIBUTES:

Essential:
--ability to represent the information to the trainee
--visual mode (to allow reading of material)

Desirable:
--self-pacing (since trainees require varying lengths of time for learning)
--random access (to allow for a review of select portions of the material)
--a limited amount of realism (an example IRI)

Irrelevant:
--color
--three dimensionality
--motion

MEDIA SELECTION DECISIONS:

The medium of print fit the above-listed attributes. Not only could it represent the body of knowledge, but it also allowed for self-pacing and a high degree of random access.

FINAL CHOICE OF MEDIA:

The medium of print in the form of a manual, sample IRI, and a paper and pencil test was utilized to accomplish objective 1.

Figure 8

Media Selection for the Training Module on Utilizing the IRI

TARGET STUDENTS:

Special education teacher trainees.

INSTRUCTIONAL OBJECTIVES 2 AND 3:

Since objectives 2 and 3 refer to primarily the same task (i.e., coding), one media analysis was used for both objectives.
2. The teacher trainee shall code the performance of an exceptional child reading a basic word recognition list with 97% accuracy.
3. The teacher trainee shall code the performance of an exceptional child while reading the oral reading selection of an IRI and receive an accuracy rating of 95% or better when compared to the coding of an expert.

MEDIA ATTRIBUTES:

Essential:
--ability to represent the reading performance of an exceptional child
--auditory mode (to allow for hearing of reading performance)
--visual mode (to show coding symbols)
--fairly high to very high degree of realism

Desirable:
--self-pacing (to allow for differing rates of learning)
--random access (to allow for review and practice)

Irrelevant:
--color

Figure 9

Media Selection for the Training Module on

Utilizing an IRI

(continued on the following page)

MEDIA SELECTION DECISIONS:

The need to use both an audio and a visual sense mode immediately required either one media which combined these modalities or a combination of two separate media. Although film and videotape combine the audio and visual modalities, the equipment for the two media would be difficult to supply to large numbers of trainees for self-instructional purposes. These media also have a low degree of random access.
A further examination of the skill to be taught revealed that although it was necessary for the examiner to follow the printed selection that the child was reading, it was not strictly necessary that the examiner be physically present to visually observe the child reading. Thus, a combination of two separate media could be employed. Print could be used to satisfy the visual requirements and audiotapes could satisfy the audio requirements. Additionally, both media allow for realism, self-pacing, and random access.

FINAL CHOICE OF MEDIA:

Audiotapes were used to portray the oral reading performance of children and print was used: (a) to give coding instruction and symbols; and (b) to represent the selections from which the child was reading.

Figure 9 (continued)

TARGET STUDENTS:

Special education teacher trainees.

INSTRUCTIONAL OBJECTIVES 4, 5 and 6:

It was determined that one media analysis would suffice for objectives 4, 5 and 6 since, in essence, all three revolve around the same task--interpreting the data secured from administering an IRI.

4. The teacher trainee shall analyze an oral reading selection, differentiating the errors from the miscues, and accurately score them. Trainees must score 85% or better on a criterion exercise.

5. Utilizing information from an IRI word list, the trainee shall determine the level on which to begin testing a child to determine his/her instructional reading level. Trainees must score 90% or better on the criterion exercise.

6. The teacher trainee shall determine the child's instructional reading level, based on information obtained from the IRI. Trainees must score 90% or better on the criterion exercise.

MEDIA ATTRIBUTES:

Essential:
--ability to represent test results
--visual mode (to show results)
--realism (actual or simulated test results were necessary to afford trainees practice in interpreting test information)
--iconic representation of material

Desirable:
--self-pacing (to allow trainees to move forward at their own learning rate)
--a high degree of random access (to allow as much review and practice of interpretation principles as was necessary for learning)

Irrelevant:
--motion
--color
--three dimensionality

Figure 10

Media Selection for the Module on Utilizing an IRI

(continued on following page)

MEDIA SELECTION DECISION:

Since test results are almost always represented in printed form, to obtain a high degree of realism the actual or simulated test results contained within the module would also need to be presented in printed form. Further, the media of print allows for a high level of both self-pacing and random access.

FINAL CHOICE OF MEDIA:

The medium of print was chosen to represent: (a) test results; (b) the principles for interpreting the test results; and (c) exercises which supplied trainees with practice in applying the interpretation principles and determining trainees' functional reading levels.

Figure 10

(Continued)

additional practice exercises for individuals who did not initially reach the predefined level of accuracy in coding. Sections III and IV were composed of printed instructions for scoring and interpreting a child's performance on an IRI, study exercises (i.e., simulating the coded performance of children on an IRI) in which trainees practiced the scoring and interpretation rules, and criterion exercises with instruction for further study if the stated criterion was not met. Thus, the self-instructional format around which the module was designed allowed a great deal of variety to be used in the presentation of the instructional materials. The next step to be considered was the design of the protocol materials.

Designing Protocol Materials

A protocol material is a real or a simulated record of educationally relevant behavior. The behavior portrayed in the module was the oral reading performance of exceptional children. Since this behavior is primarily auditory in nature, audiotapes were used to record it.

Audiotapes of exceptional children being administered an IRI were secured from two sources. First, several tapes were obtained from the Department of Reading Education at Indiana University, Bloomington, Indiana. Second, a number of IRIs were administered to exceptional children and their performance was recorded. Included were samples of each child's reading performance on at least three grade levels.

Once the pool of audiotapes had been assembled, the tapes were analyzed for auditory quality, clarity of child's reading performance, and the number and quality of reading miscues made by each child per tape. To confirm this analysis, a second individual was asked to examine the tapes with the same purposes in mind. Based upon these two analyses, a set of tapes appropriate for use in the IRI module was assembled.

At a later date (during the formative evaluation of the module) this original set of tapes was supplemented with two additional tapes. These latter tapes were scripted simulations of the oral reading performance of exceptional children.

Thus, two developmental formats were used in designing the protocol materials for the IRI module: edited excerpts and scripted simulations. The assembled protocols were then integrated into the module and formative evaluation was begun.

Summary

Chapter IV has described the process of developing the instructional module. It reviews the construction of criterion tests, the selection of format and media, and the designing of protocol materials. The formative evaluation of the module is reported in Chapter V.

CHAPTER V

FORMATIVE EVALUATION

Formative evaluation is the culmination of the developmental process. During this time the initial version of the instructional material is subjected to an appraisal by both experts and potential student users of the material. Feedback gained from these individuals is used to modify and improve the initial product.

Expert Appraisal

Expert appraisal was the first phase of the evaluative process to be undertaken. This phase consisted of both an instructional and a technical review. The purpose of the reviews was to determine the appropriateness, effectiveness, usability, and technical quality of the module. As Thiagarajan, et al. (1974) point out, "...from a dissemination point of view, expert opinion is most important since, for better or worse, the decision to adopt the material is frequently based upon it. [p. 127]." Primarily, the experts supplied information which aided in modifying the instructional material so that it was theoretically sound and of high technical quality.

Most experts are highly specialized individuals who have a broad base of general knowledge and are proficient in one or more areas. Because of this, and since it was desirable that several aspects of the module be examined (i.e., instructional relevance and accuracy, clarity and appropriateness of format, technical quality of media, and accuracy and appropriateness of language content), a number of experts were utilized. To allow for the greatest efficiency in the use of talent, no expert was requested to offer information about an aspect of the module which was outside his or her specialty. All of the experts who examined the IRI module were members of the professional staff at the Center for Innovation in Teaching the Handicapped (a federally funded Research & Development Center) or faculty members in the Department of Special Education at Indiana University. A report of their suggestions follows.

Instructional relevance. The relevance of the instructional module was established prior to beginning the developmental process. This was established by means of the needs assessment study and the literature review reported in Chapter II.

Accuracy of content. The guidance of a subject matter expert was used throughout the developmental process. Suggestions for revisions, additional inclusions, and deletions were implemented during the designing of the initial version of the module. Thus, few recommendations for revisions resulted from the final formative evaluation. A major recommendation, which was offered during the development of the module, was the need to include information on how to construct and use a word recognition list. A second major recommendation, which was offered at the time of the final formative evaluation, was the need to include exercises on the scoring of the comprehension questions. Both recommendations were implemented and the appropriate revisions were made.

Clarity and appropriateness of format. The assistance and advice of an ID expert was sought and used during the entire developmental process. The ID expert afforded guidance in performing the task and concept analyses. Further, the expert recommended that: (a) an introductory page be added before each section to graphically portray the content of the section; (b) the answer keys for the exercises contained in the module be compiled and placed in a separate booklet; and (c) additional oral instructions for using the audiotapes be included on the tapes. All of the above recommendations were implemented except for b, that the answer keys for the exercises contained in the module be compiled and placed in a separate booklet. Since the module was self-instructional, it was decided that it would facilitate learning and be more convenient if each answer key appeared directly after the exercise to which it corresponded.

Technical quality of media. The sound technician recommended that: (a) a lead-in portion of tape be added to each copy of the audiotapes for the module and that the lead-in portion of the tapes be the same length on each tape; and (b) the tapes be recopied from the originals using more sensitive equipment in an attempt to eliminate a high-frequency hum which was prominent on the inital copies of the tapes. Both of these procedures were implemented and served to improve the quality of the final tape copies.

Accuracy and quality of language content. The revisions required in the area of language were minor and of a technical or mechanical nature; i.e., punctuation, spelling, a few instances of awkward sentence construction, and typographical errors.

The combined suggestions and guidance of these experts greatly facilitated the developmental process. Their recommendations, together with the information gathered from developmental testing, were greatly responsible for the quality of the final version of the module.

Developmental Testing

More than the judgment of experts is needed to determine whether or not the instructional material actually influences or facilitates learning. Developmental testing accomplishes this purpose. During developmental testing the IRI module was presented to representative trainees to test the instructional and motivational effect of the module. Data thus obtained were utilized to modify the instructional material and thereby increase its instructional effectiveness.

The initial developmental testing of the IRI module was done on a one-to-one basis. This made it possible to locate portions of the module which required clarification and/or which needed additional instructional tasks and to initiate on-the-spot revisions. When an individual finished the module and revisions were complete, the module was retested. During the second testing information was gathered about the effectiveness of both the instructional content of the module and the procedures under which it would be used. Based upon the results of the second testing, the module was further refined and assumed its semi-completed form. The third and last phase of developmental testing was conducted under conditions representative of those under which target trainees would be working. Trainees advanced through the module unassisted and at their own pace. An examination of each subject's performance on the criterion exercises and personal interviews were used to identify remaining problems. In the following sections the problems which were identified and the adaptions which were implemented are discussed.

Results and consequent adaptations. First, one selection was too long to code in its entirety. Trainees grew tired and exhibited physical and verbal signs of frustration. This selection was subsequently shortened by editing the tape and using only the first portion.

Second, from trainees' comments it was ascertained that due to poor audio quality, two of the taped samples of children reading a word recognition list had to be replaced. A reevaluation of the original pool of tapes resulted in the decision that the available tapes either contained too much auditory interference, which made listening difficult, or did not contain an adequate enough sampling of miscues (number and/or type). To facilitate higher audio quality on the tapes and to insure an adequate sampling of miscues, scripted protocol materials were used. That is, on the two word lists, those words which were to be read correctly and those words which were to be misread, were indicated in writing. The exact manner in which a word was to be misread was also noted. The performance of an individual coached in reading the scripts was recorded and the selections thus secured were added to the protocol materials for the module.

Third, a number of errors were found to exist in the answer keys to some of the module exercises. Correcting such errors was a simple process which could be accomplished at the exact time an error was identified.

Fourth, in several places the instructions located at the end of an exercise were not clear or lacked enough specificity. Again, these revisions were relatively simple and could be rewritten with ease at the time they were located.

Additional information gathered from the developmental testing indicated that trainees' comments about the module and what they felt they had gained from it were very positive. Trainees evidenced little or no difficulty in successfully completing the criterion tests and/or exercises. The amount of information and practice provided by the module was thus felt to be sufficient. Further, judging from information gathered by means of personal interviews, trainees did not feel that any section contained "too much" information or practice. Lastly, as had been predicted, the module required approximately four hours to complete (total time was, however, subject to individual variations); sections I and II each took about an hour, section III took about an hour and 20 or 30 minutes, and section IV took 30 to 45 minutes.

The completed module consisted of a printed booklet and a set of complementary audiotapes. The booklet contained theoretical information about an IRI and its use, exercises designed to allow trainees to apply information they had gathered, and criterion exercises which trainees could use to diagnose their own performance. Specifically, the booklet was divided into four sections: I, acquiring a basic body of knowledge about an IRI; II, coding an exceptional child's reading performance; III, analyzing and scoring the information gained from an IRI; and IV, interpreting the IRI scores and assigning reading levels. The audiotapes contained real and simulated examples of the reading performance of retarded children and were intended for use with section II of the booklet.

Summary

Chapter V has described the formative evaluation of the IRI module and reported the results of that evaluation. The information gained was used to revise and improve the quality of the instructional module. Once final revisions, based on information gathered during the formative evaluation were completed, the module was submitted for duplication. Chapter V concludes Part I, the developmental component, of the present project. Part II, the evaluative component, is discussed in Chapters VI through IX.

Part II

Evaluation of the Instructional Module

CHAPTER VI

HYPOTHESES

Part II of the present project deals with the evaluative component of the study and is divided into four chapters: Hypotheses, Methods, Results and Discussion, and Implications. The purpose of the evaluation, termed the summative evaluation, was to test the effectiveness of the module with teacher trainees. Its principal objective was to demonstrate that the module, as a function of the planned activities contained within it, produced measurable and reliable changes in trainees' behaviors. With the exceptional child in mind, trainees were expected to evidence increases in the following selected areas: their theoretical knowledge about an IRI; their accuracy in recording (coding) oral reading performance; their ability to identify and score reading miscues; and their ability to interpret the IRI scores and assign instructional reading levels. Following are the specific hypotheses for the evaluation study.

Hypotheses 1 (H_1): Trainees who receive the IRI self-instructional module are more proficient in their knowledge of and ability to utilize an IRI when compared to trainees who do not receive the module.

Included in the format of the instructional module were four elements that Peck and Tucker (1971) found common to many successful teacher training efforts. The elements are: behaviorally defined criteria, training carefully planned to assist trainees in meeting the behaviorally defined criteria, ample practice for skill development, and immediate feedback about performance. It was felt that trainees who completed the module would evidence greater proficiency in the skills taught by the module than those trainees who had not received the module since, in fact, the module was specifically designed to emphasize the four successful training elements mentioned above.

Proficiency in the skills taught by the module was measured with a posttest which sampled each of the tasks taught by the module. The test was administered to two randomly assigned groups of trainees: one designated as an experimental and the other as a control group. The experimental subjects received training through the module and the control subjects received no training. When the experimental subjects' training was completed, both groups received the posttest and their results were compared as a test of H_1.

Hypothesis 2 (H_2): Trainees are more proficient in their knowledge of and ability to utilize an IRI after completing the module than they are before they complete the module.

Hypothesis 2 differs from H_1 in that it deals with a within-group comparison rather than a between-group comparison. After the initial testing, described in H_1, the control group received the module. Subsequent to completing the module, the group received a second test. The results of the two tests, which had been administered to this group (one prior to and one after going through the module), were compared to ascertain whether the subjects had learned from the module.

Increased proficiency in the skills taught by the module was predicted on the same basis as it was in H_1.

Hypothesis 3 (H_3): Knowledge and skill exhibited by trainees who receive the IRI training module is maintained one week following the termination of the treatment.

Hypothesis 3a (H_{3a}): The performance of trainees assessed immediately following completion of the module is the same as that of trainees assessed one week after completion of the module.

Retention is one of the most important aspects of learning. It is particularly important to teacher trainees who are building a repertoire of skills which, in most instances, will not be immediately used, but must be stored for future use when the trainees become classroom teachers. Since practice plays an important role in insuring retention, the instructional module was specifically constructed to provide ample practice of all skills taught. Thus, it was reasonable to expect that trainees would retain skills which were acquired through the module.

Hypotheses 3 and 3a each test the maintenance of learning achieved as a result of completing the IRI training module. The test of H_3 requires a within-group comparison of the performance of the experimental group. These subjects were tested immediately after completing the module and again one week later. The results of the initial posttest and the delayed posttest were compared to ascertain how well learning had been maintained. Hypothesis 3a required a between-group comparison in which the results of the control group's posttest were compared to the results of the experimental group's delayed posttest. If individuals tested over time receive approximately the same scores as individuals tested directly after receiving the module, then support is offered to the contention that the learning achieved from going through the module is relatively stable and the instructional module is effective.

Hypothesis 4 (H_4): Trainees who receive a pretest before completing the module perform the same on the posttest as trainees who do not receive a pretest before completing the module.

Campbell and Stanley (1968) suggest that it is possible for a pretest to interact with a treatment and for the two factors to jointly influence learning. When this occurs it is thought that the pretest acts as a cueing stimulus sensitizing individuals to what is to be learned. In the present study, however, it was expected that the strength of the module itself would account for learning.

In effect H_4 contends null effects of pretesting on the dependent variables. An essential aspect of the ID approach is the specific statement of behaviors which trainees are expected to exhibit upon termination of the learning experience. Trainees know in advance the exact behaviors which are expected of them and subsequent training assists them in meeting the prestated behavioral criteria (Thiagarajan, et al., 1974). Since the ID approach provides its own learning cues, additional cueing from extraneous sources, such as a pretest, would be expected to have little or no effect on learning.

Summary

The hypotheses put forth in Chapter VI state the effects which the module was expected to have on the performance of special education teacher trainees. If experimental results confirm these hypotheses, then the effectiveness of the module is established. Chapter VII describes the methods employed in carrying out the summative evaluation.

CHAPTER VII

METHOD

The method utilized for testing the experimental hypotheses presented in Chapter VI is discussed in this chapter. Included in the chapter are discussions of the subjects, materials, test construction, procedures and evaluative design of the study.

Subjects

The sample population was composed of 62 students enrolled in three special education methods classes offered through Indiana University. Trainees within each of the classrooms were randomly assigned to either an experimental or a control group. Demographic information about the two groups is found in Table 5.

Materials

IRI Module. The instructional package had two components: a printed booklet and a set of audiotapes. The booklet contained theoretical information about an IRI and its use, exercises designed to allow trainees to apply information they had gathered, and criterion exercises which trainees could use to diagnose their own performance (see Appendix C). The audiotapes contained real and simulated examples of the oral reading performance of retarded children and were to be used in conjunction with written exercises within the module.[1]

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[1] Copies of the completed module are available through the Center for Innovation in Teaching the Handicapped, Indiana University, 2805 E. Tenth Street, Bloomington, Indiana 47401.

Table 5

Demographic Information on Subjects

Variable	Experimental Subjects	Control Subjects
Educational level:		
Undergraduate	5	4
Graduate	26	27
Teaching experience:		
None	9	5
Student teaching only	2	3
One or more years	20	23
Prior knowledge about an IRI:		
Previously read or heard about an IRI	12	12
Observed an IRI being used	7	5
Used an IRI	9	6

Questionnaire. The evaluation questionnaire, which trainees were asked to fill out after having completed the module, was divided into seven major sections. Each section dealt with one particular aspect of the IRI module. The aspects covered were: (a) objectives, (b) tests, (c) subject matter content, (d) relevance to teachers, (e) recommended procedures for using the module, (f) attitudes toward the module, and (g) suggestions for modifications.

Test Construction

An achievement test was designed to measure the subjects' knowledge of an IRI and its use. The procedures used in constructing the test were basically the same as those recommended by Nunnley, (1967). First, the content validity of the test was established and, second, an item analysis was performed to secure additional information about the test. To insure the content validity of the test, a plan was devised for constructing it. The plan included an outline of the content to be covered by the test and a description of the type of items to be used. When completed, the plan was submitted to critical appraisal and subsequent revisions. The test items, when written, were also submitted for continued review and refinement until a satisfactory product was obtained. In accordance with the content outline, the test contained items representative of each of the four discrete sections of the module. Thus, the test is described as having four subscales with both subscale and total test scores reported in the data analyses. The final version of the test contained 102 items and is located in Appendix D.

Time did not permit an item analysis to be performed prior to the use of the test in the study. However, inasmuch as additional information regarding the test was desired, an item analysis was performed on the 62 tests which composed the posttests for both the control and experimental groups. The analysis revealed that 6 of the 102 test items (items 1, 61, 76, 80, 84, and 85) correlated negatively with their respective subscale scores. These items were reexamined by the author to ascertain probable reasons for the negative correlations. Item one was found to be more indicative of a philosophical orientation to reading assessment than to the module's purpose of training individuals to use an IRI. The remaining items (61, 76, 80, 84, and 85) required subjects to code the oral reading performance of a child. The coding was done from audiotapes and the items in question were found to be difficult to hear and misleading to code when the child was not observed while reading. As a result of these findings, the items were judged to be inappropriate measures of subjects' knowledge and were deleted from subsequent data analysis. All other test items were retained. In making this decision, the content validity of the items was the foremost consideration since, according to Nunnley (1967): (a) content validity is of primary importance to achievement tests; and (b) the sample population (62) of the present study was not large enough when compared to the number of test items (102) to guard against the probability of misleading results from the item analyses.

To obtain a statistical measure of the degree of relationship which existed between the subscales themselves and between the subscales and the total test, Pearson Product-moment correlation coefficients were calculated. Subscale scores for the experimental conditions were correlated with each other and with the total test score. Following are the results of these analyses.

Correlations between the subscales for experimental conditions. The correlations between the subscale and total test scores of the posttest condition for the experimental group (0_1) are presented in Table 6. From this table it may be observed that the majority of the subscale scores for 0_1 have a low correlation with each other and a higher correlation with the total test score. The major exception to these findings occurred with subscale one. The probable reason for this discrepancy will become evident as the reliability scores for the test are discussed. In general, the low correlations between the subscales themselves indicated that they measured discrete aspects of an individual's ability to utilize an IRI. The higher correlations between the subscale scores and the total test score were to be expected since the total test score is a compilation of the subscale score.

The results of the correlation analyses for condition 0_1 were confirmed to an even stronger degree by the results of the analyses for the remaining three experimental conditions (see Tables 7-9).

The highly similar results of each of the analyses lend strong support to the original assumption that the subscales are discrete from one another. As a consequence, each of the subscales is subsequently treated as a separate entity.

Test reliability. As a measure of the test's reliability, alpha coefficients of internal consistency (Cronbach, 1951) were determined for each of the subscales and the total test. The alpha score reflects

Table 6

Correlations between Subscales and Total Test Scores of the Posttest Conditions (0_1) for the Experimental Group (N = 31)

Subscales	Subscales 1	2	3	4	T
1	-	-.385	.324	.095	.195
2		-	-.080	-.056	.460
3			-	.438	.639
4				-	.739
T					-

Table 7

Correlations Between Subscales and Total Test Scores of the Delayed Posttest Condition (0_2) for the Experimental Group (N = 31)

Subscales	1	2	3	4	T
1	-	.119	.347	.091	.459
2		-	.001	-.102	.598
3			-	.316	.535
4				-	.631
T					-

Table 8

Correlations Between Subscales and Total Test Scores of the Pretest Condition (0_3) for the Control Group (N = 31)

Subscales	1	2	3	4	T
1	-	.119	.347	.091	.459
2		-	.001	-.102	.598
3			-	.316	.535
4				-	.631
T					-

Table 9

Correlations Between Subscales and Total Test Score of the Posttest Condition (0_4) for the Control Group (N = 31)

Subscales	1	2	3	4	T
1	-	-.076	.347	.169	.385
2		-	.124	.286	.674
3			-	.308	.564
4				-	.793
T					-

the degree of reliability among the items of a scale. The total test was found to have a reliability of .75 while the four subscales had reliabilities of .30, .80, .50, and .70 respectively. As can be observed, the internal consistency coefficient of subscale one was low. Since the content of this section of the instructional module covered general information regarding an IRI, the test items attempted to survey that general knowledge and each item attempted to measure a separate factor. Thus, as there was little relationship between the majority of the items within subscale one, success on one item would not necessarily predict success on another item. However, the alpha coefficients for the total test and subscales two, three, and four did indicate that items within these scales were reliable.

Evaluation Design

The paridigm used to evaluate the instructional module developed in this project is a variation of a cross-over experimental design. The design, outlined in Figure 11 permitted randomized assignment of trainees to two groups. Group A received the module and the posttest during the first week of the evaluation, while Group B (control) received the posttest only at the end of week one. The treatment (module) was then "crossed over" and replicated with Group B during week two with a posttest administered at the end of the week to both Groups A and B.

The design appeared to be a particularly viable means of testing the effects of an instructional module. It permitted the treatment to be administered to both the experimental and control groups. This is a condition which is essential in most classroom or teaching situations

Weeks	Week One		Week Two
Group A (N = 31) R	X_1 O_1		O_2
Group B (N = 31) R	O_3	X_2	O_4

Where R = Random assignment of subjects

X_1= Treatment (experimental subjects received module training)

X_2= Treatment (control subjects received module training)

O_1= Posttest measure (immediately after treatment)

O_2= Posttest measure (one week after treatment)

O_3= Serves two purposes: (a) posttest control measure for X_1; and (b) pretest measure for X_2 replication of treatment.

O_4= Posttest (observation) measure

Figure 11

Design Used to Evaluate the Effectiveness of the Instructional Module where all members of the class are expected to receive an equal opportunity to gain knowledge as a function of enrollment in a college course. Further, with little additional interruption of class time, it permitted a measure of the maintenance effect of the treatment administered to the experimental group (Group A). The design also allowed for a measure of the effect of pretesting on knowledge acquisition. Further, it permitted the replication of treatment results and the assessment of maintenance effects.

Procedure

The study consisted of two week-long phases. Prior to the first week, a table of random numbers was used to assign subjects to either the first or the second week of the two-week period. Individuals assigned to week 1 composed the experimental group while those assigned to week 2 composed the control group.

On the first day of the study it was explained to all subjects that their class had been divided into two groups and that the groups had been assigned to one week of a two-week period. It was further explained that although not all members of the class would be receiving the same experiences at the same time, as is the case in most courses, they would all eventually engage in similar experiences. Everyone was then informed of his/her weekly placement; individuals assigned to week 2 were allowed to leave and those assigned to week 1 were asked to stay for a short meeting.

The purpose of the meeting was to distribute the module and give instructions for its use. Subjects were told that they had exactly one week to complete the module. This process should require approximately four hours of their time, alhtough there would be variance between individuals with regard to time invested. Since the module was designed to be totally self-instructional, each individual was asked not to discuss the module or its content with anyone and to avoid doing any extra reading on the subject of the module for the next two weeks. Handouts regarding the availability and scheduling of tape recorders were then given to each subject and the group was dismissed.

Methods course instructors agreed to refrain from covering the area of reading or reading assessment until after the data were collected. Requesting that subjects refrain from discussing the module and/or doing extra reading on its topic and having methods course instructors avoid covering the area of reading during the experiment, served to minimize confounding the experimental conditions of the study.

At the end of the first week all modules were collected and both groups, those who had received the module and those who had not, were given a test which covered the content of the module. When the test was completed, week 1 subjects were again requested not to discuss the module, including the test, and not to do any additional reading on the topic of the module. Subsequently, week 1 subjects were allowed to leave and week 2 subjects were asked to stay for a short meeting.

During the meeting with week 2 subjects each individual was given a copy of the module along with the same information and instructions which had been given to the previous group.

At the end of the second week all modules were collected and both groups were retested. Finally, all trainees were asked to complete a questionnaire concerning their opinion of the module. This completed the data collection phases of the study.

Summary

Chapter VII has described the method used to test the effectiveness of the IRI module. The topics discussed were: subjects, materials, test construction, evaluative design, and procedures. The analyses of the data collected by the procedures described in this chapter are reported in Chapter VIII.

Chapter VIII

RESULTS AND DISCUSSION

Several statistical procedures were employed to test the hypotheses described in Chapter VI. Figure 11 in Chapter VII graphically represents the design for the study. The *a priori* predictions derived from this design were:

1. Group A's posttreatment test (0_1) would be greater than Group B's pretreatment test (0_3); ($0_1 > 0_3$).
2. Group B's posttreatment test would be greater than Group B's pretreatment test (0_3); ($0_4 > 0_3$).
3. Group A's posttreatment test (0_1) and Group A's delayed posttreatment test (0_2) would be approximately equal; ($0_1 = 0_2$).

3a. Group A's delayed posttreatment test (0_2) and Group B's posttreatment test (0_4) would be approximately equal; ($0_2 = 0_4$).

4. Group A's posttreatment test (0_1) and Group B's posttreatment test (0_4) would be approximately equal; ($0_1 = 0_4$).

A series of *t* tests were used to test the difference between the means in each hypothesis; however, since *a priori t* tests require independent observations it was necessary to construct K-1 (4-1) orthogonal contrasts (Kirk, 1968, Chapter 3). Table 10 illustrates the three orthogonal contrasts which were constructed and the corresponding hypotheses which each tested.

Table 10

Orthogonal Contrasts for Observations 0_1, 0_2, 0_3, and 0_4 and the Hypotheses Which Each Constrast Represents

Contrasts	Observations Weights for $0_1, 0_2, 0_3, 0_4$	Hypotheses	Observations Compared
$\hat{\Psi}$ 1	1 0 0 -1	H.4 ($0_1 = 0_4$)	$X_{0_1} - X_{0_4}$
$\hat{\Psi}$ 2	1 -2 0 1	H.3 ($0_1 = 0_2$) and H.3a ($0_2 = 0_4$)	$\frac{X_{0_1} + X_{0_4}}{2} - X_{0_2}$
$\hat{\Psi}$ 3	1 1 -3 1	H.1 ($0_1 > 0_3$) and H.2 ($0_4 > 0_3$)	$\frac{X_{0_1} + X_{0_2} + X_{0_4}}{3} - X_{0_3}$

The contrasts were tested in the sequential order in which they appear in Table 10. This procedure was necessary because the test for each successive contrast was dependent upon the results of the preceding contrast. For example: to perform Contrast 2, the difference between the means in Contrast 1 must have been demonstrated to be nonsignificant. Since the achievement test yielded a set of five scores (four subscale scores and a total test score), five t tests were performed within each of the three orthogonal contrasts. Contrasts 1 and 2 were concerned with demonstrating that the means for all posttreatment tests (Group A, 0_1 and 0_2; and Group B, 0_4) were equal, while Contrast 3 was concerned with demonstrating that the means for the pretreatment test (Group B, 0_3) were significantly different from the combined means of the posttreatment tests (O_1, O_2, and O_4).

Results

Table 11 reports the means and standard deviations for each of the observations (O_1, O_2, O_3, and O_4). Figures 12 and 13 present the means from Table 11 in graphic form.

Table 11

Means and Standard Deviations for the Subscale and Total Test Scores

Variables		Observation			
		Group A		Group B	
		Posttest O_1	Delayed Posttest O_2	Pretest O_3	Posttest O_4
Total test Scores	$\bar{X}$	76.00	76.06	46.45	75.48
	SD	6.43	7.17	9.48	7.63
Subscale 1	$\bar{X}$	14.58	14.77	8.64	14.03
	SD	1.72	1.70	2.48	1.88
Subscale 2	$\bar{X}$	29.29	29.06	21.06	28.87
	SD	4.01	4.51	6.52	3.89
Subscale 3	$\bar{X}$	12.12	12.41	4.77	12.19
	SD	4.01	1.91	1.89	1.92
Subscale 4	$\bar{X}$	20.00	19.80	11.96	20.38
	SD	3.86	4.23	4.11	4.03

The next step was to obtain a pooled population variance for the subjects in the study. This variance estimate was obtained by committing the data from the study's four observations to a two-way repeated

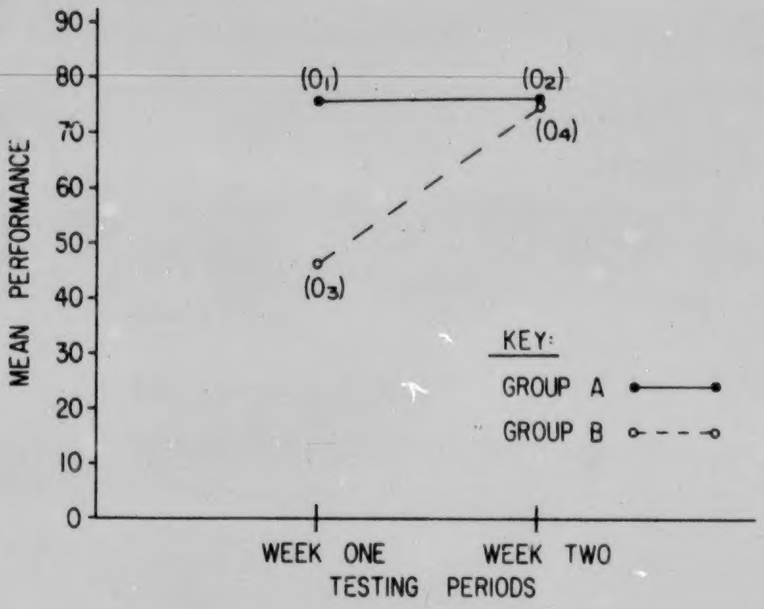

Figure 12

Mean Performance of the Experimental Groups on the Total Test Scores of the IRI Achievement Test

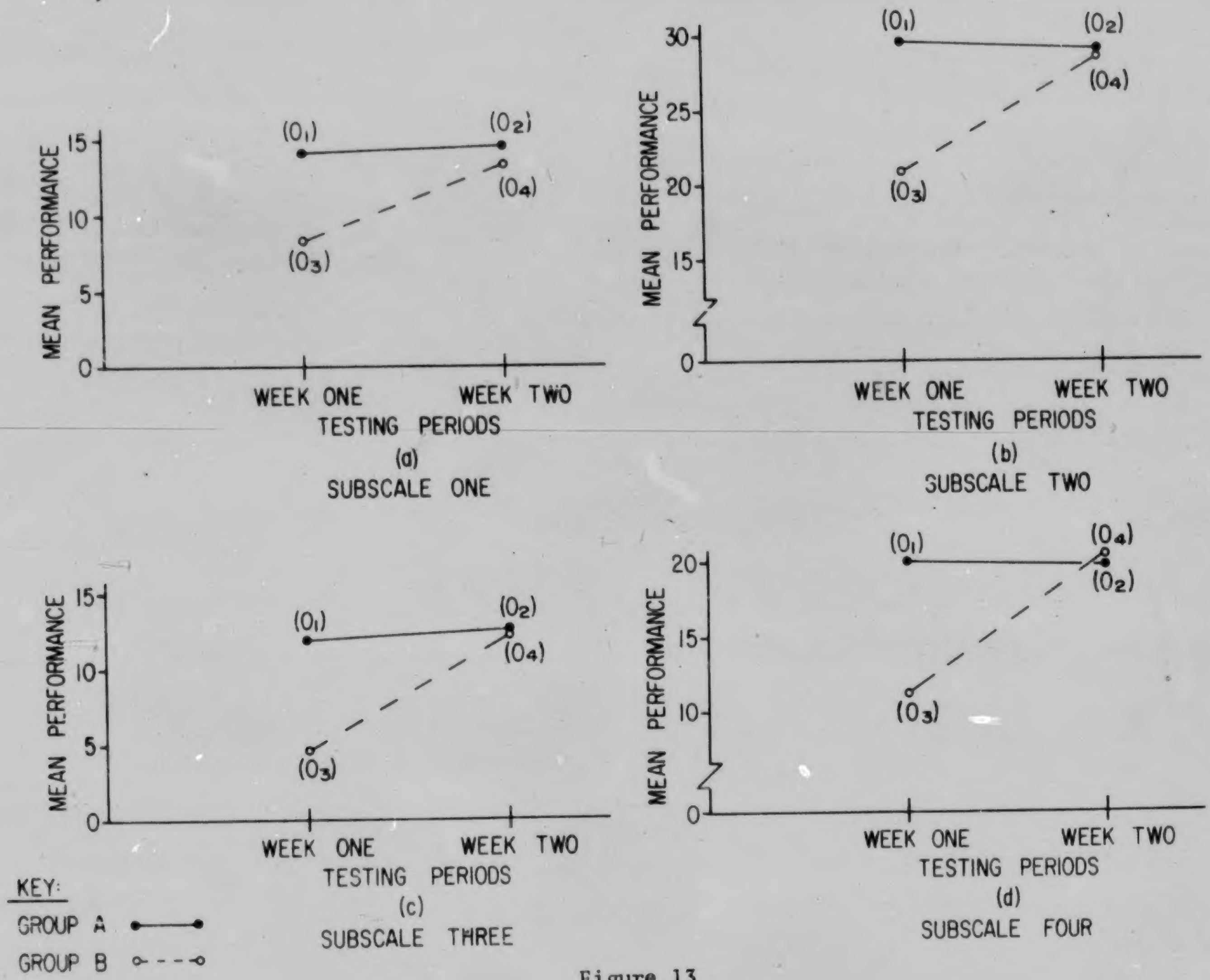

Figure 13

Mean Performance of Experimental Groups on the Subscales of the IRI Achievement Test measures analysis of variance (ANOVA) design. The interaction error terms SB(A) obtained from these analyses served as the error terms for all subsequent *t* tests. A summary of the ANOVA appears in Appendix E. The results of the comparisons of the differences between the means are discussed below.

Orthogonal Contrast 1

Contrast 1, which represents H_4, was tested with a series of two-tailed *t* tests. Table 12 reports the *t* values obtained for each of the four subscales and the total test scores. As indicated by the table, all five comparisons proved to be nonsignificant. Thus, no significant differences were found to exist between Group A's posttreatment test (0_1) and Group B's posttreatment test (0_4). Figures 12 and 13 graphically illustrate this general finding.

Table 12

Comparison of Means for Contrast One

Variables	*t* value	*df*	Level of Significance*
Total Test Score	0.419	60	$p > .05$
Subscale 1	1.356	60	$p > .05$
Subscale 2	0.496	60	$p > .05$
Subscale 3	-0.216	60	$p > .05$
Subscale 4	-0.490	60	$p > .05$

*Two tailed *t* test

Orthogonal Contrast 2

Contrast 2 represents a test of H_3 and H_{3a}. Since the differences between the means in Contrast 1 were found to be nonsignificant, the means from that contrast (posttreatment tests 0_1 and 0_4) were combined and compared against the means for Group A's delayed posttreatment tests (0_2). Table 13 reports the two-tailed t values obtained for Contrast 2. Each of the five comparisons proved to be nonsignificant. Thus, the means for the posttreatment tests (0_1, 0_2, and 0_4) were not found to be significantly different from one another. Again, Figures 12 and 13 graphically illustrate this general finding.

Table 13

Comparison of Means for Contrast Two

Variables	t value	df	Level of Significance*
Total Test Score	-0.298	60	$p > .05$
Subscale 1	-1.324	60	$p > .05$
Subscale 2	0.027	60	$p > .05$
Subscale 3	-0.908	60	$p > .05$
Subscale 4	0.580	60	$p > .05$

*Two tailed t test

Orthogonal Contrast 3

Orthogonal Contrast 3 tested H_1 and H_2. In this contrast, the combined means for all posttreatment tests (0_1, 0_2, and 0_4) were compared against the means for Group B's pretreatment test (0_3). The justification for combining these means was derived from orthogonal Contrasts 1 and 2, which demonstrated that no significant differences existed between these means. A series of one-tailed t tests were used to compare the means involved in this contrast. The results of these t tests are presented in Table 14. As indicated by the table, all t values proved to be significant. The mean performance differences are presented in Figures 12 and 13. In each instance the posttreatment scores (0_1, 0_2, and 0_4) were significantly higher than the pretreatment scores (0_3).

Table 14

Comparison of Means for Contrast 3

Variables	t values	df	Level of Significance*
Total Test Scores	29.020	60	$p < .01$
Subscale 1	17.569	60	$p < .01$
Subscale 2	11.588	60	$p < .01$
Subscale 3	28.189	60	$p < .01$
Subscale 4	12.782	60	$p < .01$

*One tailed t test

Evaluation Questionnaire

All subjects who completed the module were asked to evaluate it by filling out a questionnaire. Fifty-six subjects (90.3%) completed the questionnaire and all answered the majority of the questions asked. A copy of the questionnaire is found in Appendix F. With the exception of items 1, 10, 12, and 16, Table 15 lists the mean responses of the subjects to the questionnaire items and Figure 14 presents a profile of these statistics. All items in Figure 14 are plotted on a seven-point scale.

Table 15

Mean and Standard Deviation for

Evaluation Questionnaire Items

Item	Mean	Standard Deviation	Number of Subjects Responding
2	2.11	1.27	55
3	2.09	1.20	56
4	2.34	1.35	56
5	4.96	1.70	55
6	2.09	1.13	56
7	1.46	0.74	56
8	1.82	0.96	55
9	1.66	0.90	56
11	2.18	1.34	56
13	5.46	1.14	56
14	1.57	0.83	56
15	1.93	1.01	56
17	2.04	1.73	56
18	1.59	0.83	56
19	2.41	1.53	56
20	2.34	1.53	56
21	2.07	1.19	56
22	1.68	0.92	56

Ideally, subjects' responses in Figure 14 should fall to the left of the scale. The farther the item falls to the left, the more positive the subjects' reactions to the module. As indicated by the figure, the majority of the subjects' responses do cluster on the left of the scale; however, two items fall to the right. Probable reasons for this are considered in the discussion section of this chapter.

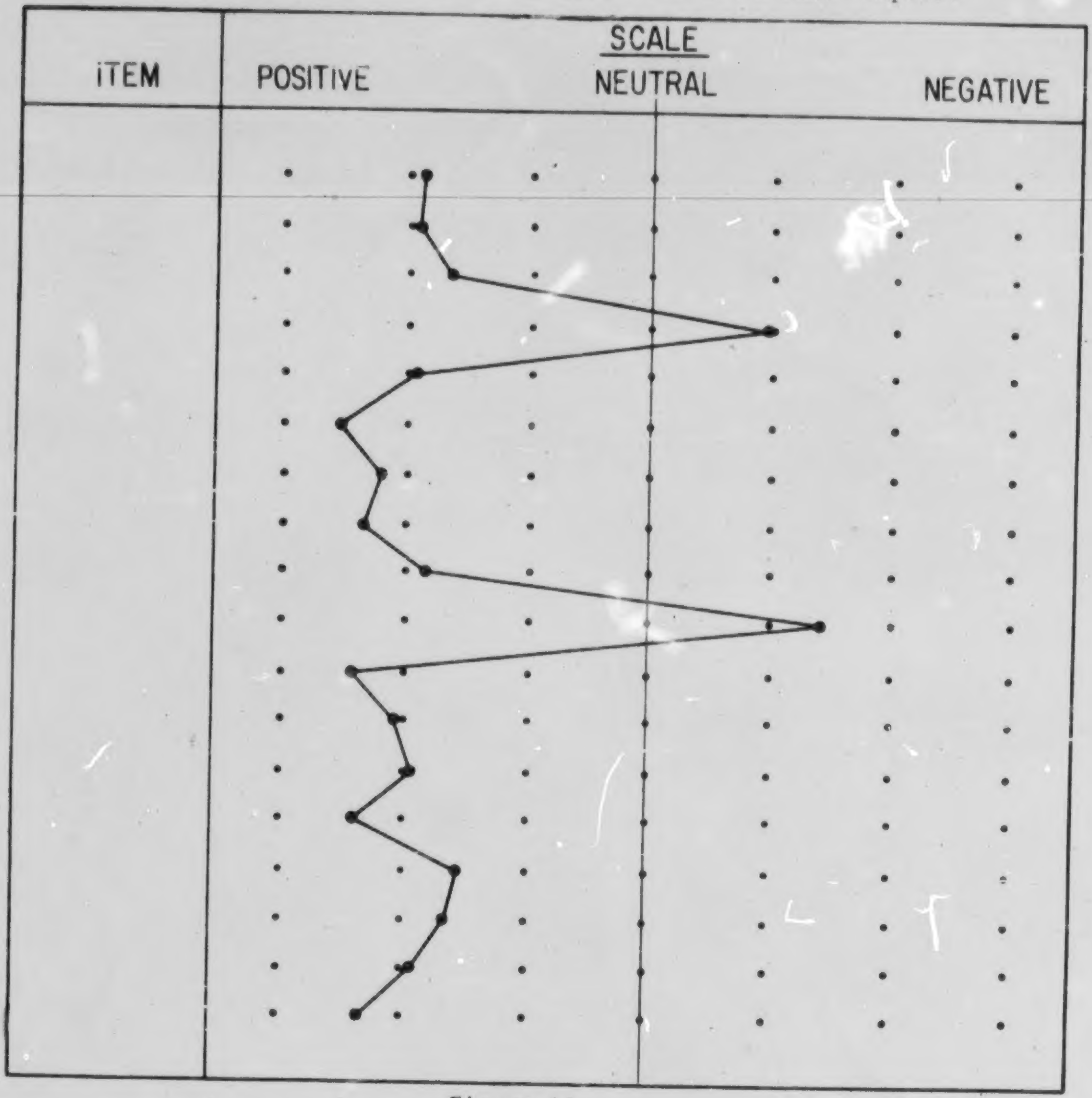

Figure 14

Mean Response of Subjects to Items on the Evaluation Questionnaire

Items 1, 10, 12, and 16 were considered separately since their format differed from the format of the other items. Item 1 was a binary question which required a "yes" or "no" response. The question asked whether the instructional material was accompanied by a list of objectives. Of the 55 subjects who responded to the item, 54 answered "yes" and 1 answered "no".

Items 10, 12, and 16 were rated on a seven-point scale. In this scale the ends were assigned a negative value (i.e.: "too much" to "too little"), while the center was assigned the most positive value (i.e.: "appropriate"). Table 16 reports subjects' mean responses to these items, and Figure 15 presents a profile of these statistics.

Table 16

Means and Standard Deviations for

Items 10, 12, and 16 of Evaluation Questionnaire

Item	Mean	Standard Deviation	Number of Subjects Responding
10	3.87	.58	55
12	4.13	1.10	56
16	4.09	0.67	56

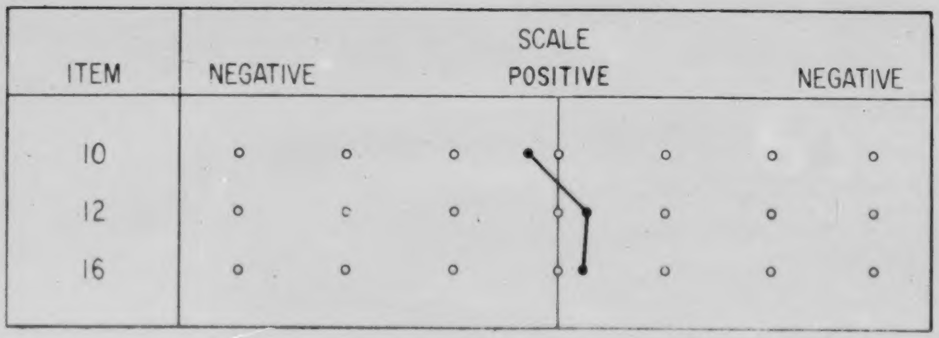

Figure 15

Profile of the Mean Responses of Subjects to
Items 10, 12, and 16 on the Evaluation Questionnaire

Ideally, subject's responses in Figure 15 should cluster around the center point on the scale. As indicated by the figure, this was found to be the case. Thus, these items received very favorable ratings from the subjects.

Discussion

Basic to the interpretation of the results of the present study is the random assignment of subjects to groups. The experimental procedures were employed to avoid selection biases among subjects assigned to the treatment groups. Potentially confounding subject variables were therefore randomized between the two experimental groups. Thus, when after treatment, Group A scored significantly higher than Group B ($0_1 > 0_3$) the performance differences between the groups were attributable to the effectiveness of the treatment.

As a further test, the treatment was "crossed over" and replicated with Group B. An examination of the pre and posttreatment tests for that group revealed that the subjects in Group B scored significantly higher on the posttreatment measure ($0_3 > 0_4$), indicating the replication of the module's effects on the learning of subjects in the second group. Further, when the posttreatment tests for both groups (A and B) were compared, it was found that the earlier performance differences between the groups had been erased and the groups were approximately equal ($0_1 \approx 0_4$).

Completing the module without a previous pretest resulted in the same performance as experiencing the prestest and then completing the module. It may be concluded that Group B's gains from pre to posttesting resulted from the independent treatment effects of the module and not from an interaction of pretesting with treatment.

If the treatment produces a stable change in behavior, then learning which results from the treatment should be maintained over a one-week period. A delayed posttreatment test administered to Group A one week after treatment did not prove to be significantly different from the posttreatment measure which was administered to that group directly after treatment ($0_1 \approx 0_2$). Since there was no significant difference between the two tests, it can be concluded that the effect of the module was maintained. Hence each of the hypotheses of the study was confirmed and the IRI module was demonstrated to be an effective teacher training tool.

Evaluation Questionnaire. As was evidenced in Figures 14 and 15, subjects' reactions to the module (its objectives, subject matter content, relevance to teachers, procedures for usage and subjects' general attitude toward the module as a teaching strategy) were very positive. There were only two items on which the module received less than positive ratings (5 and 13).

Item five relates to the quality of the test. Specifically item five asks, "Were the answers to test questions predictable due to test taking experience, cues from various test items, and/or logical guesses rather than actual knowledge of the material tested?" On a seven-point scale, where a rating of four would be considered neutral, subjects gave item five a mean rating of five. This indicates a slightly negative reaction to the test; however, two facts make further interpretation of this reaction difficult. First, subjects responded positively to an earlier item which asked how validly the test measured the objectives of the module. More importantly, contrary to what reactions to item five would indicate, subjects' pretest performance did not reflect an ability to predict answers to test questions.

Item 13 relates to the technical quality of the module's audiotapes. From the low rating (5.5) which the item received, it must be concluded that subjects found listening to the tapes either difficult or annoying. The poor technical quality of the tapes did not, however, interfere with subjects acquiring the coding skill which the tapes were intended to assist in developing. This fact is evidenced by subjects' posttreatment scores on subscale two of the achievement test. Further support for this point was supplied by subjects' reaction to questionnaire item 12, which inquired whether the coding practice offered by the tapes was adequate. Subjects gave this item a very positive rating. However, while the tapes served the purpose for which they were intended, their auditory quality is weak. Consequently, before the module is produced for general distribution, the technical quality of the audiotapes will require further attention and revisions will need to be made.

Summary

Chapter VIII has described the statistical analyses which were used to test the hypotheses of the study and reported the results of these analyses. Each of the hypotheses were confirmed by the analyses and the IRI module was demonstrated to be an effective teacher training tool. Further, when asked to evaluate the module, subjects responded in a very positive manner indicating they found it an appealing way to learn.

Chapter IX describes the implications of the project.

CHAPTER IX

IMPLICATIONS

Chapter IX discusses the implications the present project has for teacher training and educational research.

Currently, accountability issues permeate all phases of special education: selection of personnel, identification of competencies, instructional programming and performance evaluation. In teacher training, for example, competency-based programs are being implemented with great speed (Elam, 1971; Ward, 1973). As a result of this trend there is a need to develop not only training materials, but also effective means of assessing their value. While the application of the ID procedures used in this project will not be appropriate for resolving all the instructional needs of teacher training programs, the process does yield functional, empirically tested instructional alternatives. Further, the ID process appears to be compatible with the components of competency-based programs (Elam, 1971). The ID approach leads to individualized instructional formats, an emphasis on the demonstration of skills attained, and the objective assessment of performance.

In developing and testing the IRI module, the present project has demonstrated that ID is a viable teacher training technique. Specifically, the project showed that, using the Thiagarajan, D. Semmel and M. Semmel (1974) model, it was possible to efficiently construct a teacher training module which was effective in terms of both the motivation and instruction of teacher trainees. The project empirically demonstrated that trainees who completed the module measurably increased their knowledge of, and skill in using the IRI to identify the functional reading levels of exceptional children. Further, as evidenced by the evaluation questionnaire and numerous personal interviews, trainees indicated they enjoyed the IRI module and would like to have more information presented in a similar manner.

The success, both instructionally and motivationally, of the IRI module implies that ID can effectively assist teacher training programs in: (a) delineating the skills and knowledge to be taught; (b) considering assessable alternative modes of presentation; (c) choosing an instructional format based on the characteristics of the learner, concept and skills analysis, and (d) constructing behaviorally defined performance measures to assess learning. However, while it is felt that ID has broad implications for educational application a caution is necessary. Programs wishing to use the approach should realize that even though ID can assist in solving instructional problems, it does not offer any "easy answers."

The present discussion is not intended to discourage programs from adopting the ID techniques used in this project. Rather, it is intended to highlight the fact that the adoption process will require careful consideration and planning. The designing of instructional materials requires a great deal of time, thought, and energy. Further, the amount of investment varies with the intent of the developer. For example: the designing of materials for limited use in a specific situation requires far less of an investment than the designing of materials intended for large scale, general distribution.

Designing materials for general distribution requires first, the combined expertise of an instructional development team. Included in the team may be subject matter experts, instructional developers, technical experts, evaluators, artists, writers, and editors (Thiagarajan et al., 1974). Second, sophisticated technical equipment will be needed to mediate and package the materials. Finally, dissemination of the materials will require the production of multiple copies of the finished product and their marketing or distribution.

Since very few special education teacher training institutions are equipped to undertake large scale development, they will find it useful to locate and evaluate already existing materials which may effectively be integrated into their programs. The wise modification and use of already available materials will allow programs to conserve their own resources and concentrate them in areas where ID materials are necessary, but not yet developed.

How can programs identify those areas where ID is needed? The answer to this question lies in institutions' evaluation of their own program. When a program finds that the performance of trainees does not meet a desired criterion level, then ID techniques may be of assistance.

In light of the above considerations, it is recommended that prior to embarking on extensive ID projects institutions should: (a) determine where in a program the ID will make the most valuable contribution; (b) evaluate whether existing materials can efficiently meet their needs; and (c) *adopt* or *adapt* the extant materials as indicated.

Educational evaluation frequently attempts to determine whether instructional materials are effective in accomplishing their stated training objectives, and whether skills transferred to instruction result in measurably increased pupil performance.

By empirically demonstrating that the IRI module produces reliable changes in trainees' knowledge and skill in informal reading assessment, the present project has offered support to the claim that the module is effective. Completion of the module results in reliable increases in trainees' ability to use an IRI to determine the instructional reading level of exceptional children. Having established the effectiveness of the module, the present project has successfully accomplished its stated purpose and the initial phases of the evaluative process have been completed. It remains for future research to determine the validity of the skills developed through the module.

The validation of the skills taught by the IRI module depends upon the resolution of three research questions. These questions represent a logical extension of those addressed in this project and should be considered in the sequential order in which they appear below.

Having completed the IRI module and demonstrated skill proficiency in the University training environment, do teachers maintain these skills and transfer them to practical classroom application? Second, are teachers able to translate the information from the IRI into a functional instructional prescription? Finally, do these prescriptions result in demonstrable pupil growth in reading?

If research investigating these three questions yields affirmative answers, then the validity of the skills taught by the module will have been demonstrated. Pending such validation, the module may be viewed as making an initial contribution to teacher education and having potential for improving reading assessment and instructional planning by teachers in the classroom.

In choosing to develop a set of instructional materials and to empirically test their effects, the present project has proceeded in the tradition of development (D) followed by research (R). The "D to R" paradigm has a very practical value which the more traditional "research to development" (R to D) approach lacks. The value in developing first and subsequently researching the effects of instructional materials lies in the fact that such projects have greater potential utility for the schools. If, after development the materials are proven effective and valid through research, then the result is a completed package ready for dissemination and adoption by the schools. In contrast, the practice of researching phenomena to obtain information to be translated into functional pedagogical procedures frequently falls short of its ultimate objective--application in the schools.

Determination of the most relevant information and skills to develop among teacher trainees is one of the persisting problems faced by special education teacher training programs. Ideally, the most salient knowledge and skills should be those which can be shown to be most relevant to the characteristics of the learners. That is, those specific teaching competencies which are closely related to learner characteristics. When applying this criterion to the EMR, both the empirical literature and professional opinion substantiate serious deficiencies in the development of reading skills among the mildly retarded. Hence, it is not surprising that workers in the field rank skills related to the teaching of reading to retarded children as particularly desirable. Since the teaching of reading to EMRs demands an intensive analysis of the pupils' entry level, teachers of these children must be trained to a high level of proficiency in determining the instructional reading level of such pupils. The present project has provided the field with an effective self-instructional module for meeting such an objective. Hence, it is anticipated that the present work promises to contribute to the quality of instruction for mildly handicapped children in our schools.

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APPENDIX A

Needs Assessment Study Materials

-Telephone call format (pp. 139-140)
-Needs assessment questionnaire (pp. 141-142)
-Biographical information form (pp. 143-145)

Needs Assessment of Teaching Competencies

Telephone Call Format:

1. Hello and introduction:

   Dr. Semmel's administrative assistant.

2. Purpose:

   Develop teacher training modules and determine topics which will be most important.

3. Request:

   You have been selected because of your active interest in teacher education. Would you help us by completing this short questionnaire? It should only take approximately 15 minutes.

4. Instruction:

   A. Always be polite and cordial. The customer is always right is a necessary attitude. Often, after they gripe they are very nice.

   1) If they indicate they do not presently have enough time, try to set up another time to call them back. The attitude should be one of, "you are very important and if you could possibly help--at your convenience--we would greatly appreciate it." Never use force and don't be phony.

   2) If they refuse to participate, be sure to fill out as much of the biographical data form as possible, refused in the upper right hand corner of the biographical data sheet, and note their reason (if there is one given) at the top of the same page.

   B. Get the biographical information. Have as much of this filled out as possible before the call and just do confirmation on it if you feel it necessary.

   C. Try not to use the "other" category. If you must use it, record the specific information on the Supplementary Information Sheet.

   D. Note the time on the upper right hand corner of the Supplementary Information sheet and begin by reading the instructions at the top of that page.

   E. Explain that the questionnaire is divided into four major sections: one focusing on planning; one on teaching skills; one on curriculum; and one on learning characteristics of educable mentally retarded children.

1) Be friendly, but limit discussion and/or explanations to a necessary minimum. We want to avoid biasing their response by our own attitudes or interpretations of the topics.

2) A few topics have explanations within parentheses directly following the topic. Always be sure to read these to your subject.

F. Record any topic suggestions on the Supplementary Information sheet.

G. Each time you come to a new section, reiterate the focus of that section and indicate that the topics listed below it are to be rated for their importance in helping teacher trainees develop basic instructional competencies for teaching educable mentally retarded children.

H. You may need or want to repeat the rating system (i.e., A = important, etc.) another time or two during the administration of the questionnaire.
*Remember--you're reading it, but they must keep it all in their head, weigh pros and cons and make judgments, and this could result in something being forgotten or confused. We want their task to remain as clear and simple as possible.

I. Note time you complete questionnaire directly below the time started.

J. Be cordial, but limit the amount of conversation after the questionnaire is completed.

1) Thank them for their time and help.

2) Try not to make any commitments about giving them the results etc.
*This is why it is safer to limit your concluding conversation.

3) If you do make a commitment, or if the individual has become annoyed, or if he makes a pertinent comment, record this under "General Comments" on the Supplementary Information sheet.

NOTE: If the subject has indicated that he does teach methods classes, indicate to him that he may receive another call dealing with special education methods courses. However, the follow-up call will be of much shorter duration.

Questionnaire:

It has been suggested that knowledge in the areas listed below is important in helping teacher trainees to develop basic instructional competencies which are essential for teaching educable mentally retarded children. Would you please rate the competencies I read to you as:

A--very important   B--important   C--not very important   D--unimportant

FOCUS ON PLANNING:

______ 1. Interesting and motivating learners
______ 2. Planning instruction
______ 3. Determining behavioral objectives
______ 4. Matching instruction to the needs, interests, and abilities of students
______ 5. Designing the physical layout of the classroom to suit the teaching purpose or approach
______ 6. Locating, choosing, and evaluating commercial materials
______ 7. Locating and using informal and free materials found at home and elsewhere
______ 8. Knowing principles for developing teacher-made materials
______ 9. Keeping classroom records and class organizational skills
______ 10. Selection of appropriate curriculum materials

Can you think of any planning competencies which have not been included? Specify.

FOCUS ON TEACHING:

______ 11. Determining the instructional level of a student
______ 12. Interpreting standardized test results and using them for instructional purposes
______ 13. Developing and using informal tests
______ 14. Principles for grouping
______ 15. Techniques for working with groups
______ 16. Implementing preventive measures for improving class control
______ 17. Implementing corrective measures for improving class control
______ 18. Analyzing classroom verbal interaction
______ 19. Facilitating and improving classroom interaction
______ 20. Questioning techniques
______ 21. Using a variety of teaching styles
______ 22. Creating classroom climates
______ 23. Identifying effective learning modes for individual students

Add any ______

FOCUS ON CURRICULUM:

How important do you feel it is for teachers of educable mentally retarded children to possess competencies in the teaching of the following subject areas?

______ 24. Reading
______ 25. Writing/composition
______ 26. Spelling
______ 27. Language (oral and aural)
______ 28. Math
______ 29. Social Studies/skills (affective development)
______ 30. Science
______ 31. Music
______ 32. Art
______ 33. Recreation
______ 34. Motor Training (Perceptual-motor)

Add any ______

FOCUS ON LEARNING CHARACTERISTICS OF EDUCABLE MENTALLY RETARDED CHILDREN:

How important do you feel it is for teachers to possess a working knowledge of the following learning characteristics of educable mentally retarded children:

______ 35. Creativity
______ 36. Language ability
______ 37. Social development
______ 38. Affective development
______ 39. Sensory-motor development
______ 40. Attention
______ 41. Memory
______ 42. Transfer of training (applying learning to new situations)
______ 43. Socioeconomic factors
______ 44. Intellectual characteristics--(i.e., IQ, MA)
______ 45. Developmental characteristics

Are there any other learning characteristics of educable mentally retarded children which you would like to see included? Specify.

Time started _________

Time completed ________

Supplementary Information:

Biographical Information:

Name:

Office phone:

Section I

Occupation:

Section II

Column 1. Educational background:

Column 2. Main area of study:

Column 5. At what level(s) was teaching experience?

Column 6. Certification

Section III

Column 1. For which special education area do you teach methods courses?

Questionnaire:

Additional topic suggestions:

Planning: ______________________________

Teaching: ______________________________

Curriculum: ______________________________

Learning characteristics: ______________________________

General Comments:

Biographical Information Key:

Name: Record in space indicated and on Supplementary Information sheet. Be sure to put last name first.

Section I

Occupation--List in "Form of the Test"
______ A = student
______ B = faculty
______ C = staff
______ D = other--please specify on Supplementary Information sheet

Section II

Column 1--Educational Background
______ 0 = no degree
______ 1 = freshman
______ 2 = sophomore
______ 3 = junior
______ 4 = senior
______ 5 = masters
______ 6 = doctoral student
______ 7 = doctorate
______ 8 = other

Column 2--Main area of study
______ 1 = elementary education
______ 2 = secondary education
______ 3 = special education
______ 4 = educational psychology
______ 5 = other areas of education (please specify on Supplementary Information sheet)
______ 6 = psychology
______ 7 = speech and hearing
______ 8 = Other non-educational (please specify on Supplementary Information sheet)

Column 3 & 4--Teaching experience
______ 00 = no experience
______ 01 = 1 year
______ 02 = 2 years
______ 10 = 10 years (and so on up to 77--from 77 on is for students or individuals having 00 years experience)
- Student Teaching
______ 77 = have not student taught
______ 88 = am student teaching
______ 99 = have student taught

Column 5--At what level was your teaching experience?
______ 0 = preschool
______ 1 = elementary education

______ 2 = junior high
______ 3 = high school
______ 4 = College--undergraduate
______ 5 = College--graduate
______ 6 = other (please specify on Supplementary Information sheet)
______ 7 = special education

Column 6--Certification held
______ 0 = none
______ 1 = elementary education
______ 2 = secondary education
Special Education:
______ 3 = mentally retarded (MR)
______ 4 = emotionally disturbed/socially maladjusted (ED/SM)
______ 5 = learning disabled/minimally brain injured (LD/MBI)
______ 6 = gifted
______ 7 = physically handicapped
______ 8 = other (please specify on Supplementary Information sheet)

IF FACULTY, GO TO SECTION III--"Student Number"

Section III

Column 1--For which special education area do you teach methods courses?
______ 0 = none
______ 1 = EMR
______ 2 = TMR
______ 3 = ED/SM
______ 4 = LD/MBI
______ 5 = Gifted
______ 6 = physically handicapped
______ 7 = other (please specify on Supplementary Information sheet)

Columns 2 & 3--Have you supervised student teachers? If so, how long?
______ 00 = no
______ 01 = 1 year
______ 02 = 2 years
______ 10 = 10 years etc.

APPENDIX B

Concept Analyses
(pp. 147-159)

Correction Miscue

Example: saw©
~~said~~
Helen ~~saw~~ Carol at school. ("saw" misread as "said" then corrected to "saw")

Nonexample:
Helen saw Carol at school. (fluently read, all words correctly recognized)

Critical attributes:
1. Definition--An individual misreads a portion of the reading text then corrects the misread portion to read exactly as the text is written.
2. The correction does not alter the meaning of the sentence.

Irrelevant attributes:
1. It makes no difference what words of the text are misread

Figure 1

Critical and Irrelevant Attributes

of a Correction Miscue

Repetition Miscue

Example:
He ran fast. ("ran fast" was read twice even though it was printed only once in the text)

Nonexample:
The gun went bang bang. (fluently read--"bang bang" written twice in the text)

Critical attributes:
1. Definition--An individual repeats a word, part of a word, or group of words which are printed only once in the text.
2. The repetition does not alter the meaning of the sentence.

Irrelevant attributes:
1. It does not matter which word or words are repeated.

Figure 2

Critical and Irrelevant Attributes

of a Repetition Miscue

Pause Miscue

Example:
He (long pause) ran home.

Nonexample:
He ran home. (fluently read, no unusually long pauses)

Critical attributes:
1. Definition--An individual hesitates for an unusually long period of time while reading the text, thus interrupting the rhythm of what is being read.
2. The hesitation does not alter the meaning of the sentence.

Irrelevant attributes:
1. It makes no difference where within a sentence the pause occurs.

Figure 3

Critical and Irrelevant Attributes

of a Pause Miscue

Mispronunciation Miscue

Example:

Dat wif dem
That boy went with them. ("that" pronounced as "dat," "with" pronounced as "wif," and "them" pronounced as "dem")

Nonexample:

That boy went with them. (all words correctly pronounced)

Critical attributes:

1. Definition--An individual pronounces a word incorrectly by: false accentuation; wrong pronunciation of vowels or consonants; or the omission, addition, or insertion of one or more letters.
2. The mispronunciation is the result of a speech defect.
3. The mispronunciation is the result of a regional or subcultural dialect.

Irrelevant attributes:

1. It does not matter which word is mispronounced.

Figure 4

Critical and Irrelevant Attributes

of a Mispronunciation Miscue

Substitution Miscue

Example: home
The first pig made a ~~house~~ of straw. ("house" was read as "home," but the meaning of the sentence was maintained)

Nonexample:
The first pig made a house of straw. (all portions of the text correctly recognized and read fluently)

Critical attributes:

1. Definition--An individual reads another read word instead of the word which is in print.
2. The word which is substituted maintains the sentence. The substitution simply reflects the insertion of the individual's own language pattern.
3. The talker has prior knowledge of, or subsequently determines, that the individual can read the word contained in the original text.

Irrelevant attributes:

1. It does not matter where in the text a substitution occurs.

Figure 5

Critical and Irrelevant Attributes

of a Substitution Miscue

Omission Miscue

Example:

But she still wanted a little puppy. (the "ed" ending and the word "little" were not read; however, the meaning of the sentence was maintained)

Nonexample:

But she still wanted a little puppy. (all portions of the text read fluently)

Critical attributes:

1. Definition--An individual either omits or does not read a word, syllable, letter, sound or ending.
2. The omission does not alter the meaning of the text.
3. The teacher has prior knowledge of, or subsequently determines, that the individual can read the omitted portion of the text.

Irrelevant attributes:

1. It does not matter where in the text the omission occurs.

Figure 6

Critical and Irrelevant Attributes

of an Omission Miscue

Insertion Miscue

Example: of
She took the cover off∧the pot. ("of" was read although it did not appear in the original text)

Nonexample:
She took the cover off the pot. (all portions of the text read fluently and no extraneous words were inserted)

Critical attributes:

1. Definition--An individual reads a word in addition to the ones in the original text.
2. The inserted word does not alter the meaning of the text.

Irrelevant attributes:

1. It does not matter where in the text the insertion occurs.

Figure 7

Critical and Irrelevant Attributes

of an Insertion Miscue

Ignored Punctuation Miscue

Example:

First she ran to the kitchen$\odot$ $\overset{t}{\text{T}}$hen she ran to the T.V. (The period after "kitchen" was ignored and the two sentences were read as one. The ignored punctuation does not alter the meaning of the text.)

Nonexample:

First she ran to the kitchen. Then she ran to the T.V. (all punctuation marks recognized and fluently read)

Critical attributes:

1. Definition--An individual fails to note some punctuation in the text when reading.
2. The punctuation which is ignored does not seriously alter the meaning of the text.

Irrelevant attributes:

1. It does not matter where in the text the punctuation is ignored as long as the textual meaning is not altered.

Figure 8

Critical and Irrelevant Attributes

of an Ignored Punctuation Miscue

Mispronunciation Error

tow
~~to~~
~~t~~
Example:
He went to ~~town~~. ("town" mispronounced as "t," "to," "tow")

Nonexample:
He went to town. (fluently read, no mispronounced words)

Critical attributes:

1. Definition--An individual pronounces a word incorrectly by: false accentuation; wrong pronunciation of vowels or consonants; or the omission, addition, or insertion of one or more letters.
2. The mispronunciation indicates an inability, when reading, to determine correctly the pronunciation of words.

Irrelevant attributes:

1. It does not matter how often the individual attempts to pronounce the word as long as he does not read the word correctly and the incorrect pronunciation results from an inability to recognize and read the word.
2. It does not matter how close the individual's pronunciation is to the text as long as he still mispronounces the word and the mispronunciation results from an inability to recognize and read the word.

Figure 9

Critical and Irrelevant Attributes

of a Mispronunciation Error

Substitution Error

Example: still
The wolf ~~slid~~ down the chimney. ("still" was read in place of the "slid.")

Nonexample:
The wolf slid down the chimney. (all portions of the text correctly recognized and fluently read)

Critical attributes:
1. Definition--An individual reads another real word in place of the word in print.
2. The word which is substituted alters the meaning of the text in which it appears.

Irrelevant attributes:
1. It does not matter where in the text a substitution occurs.

Figure 10

Critical and Irrelevant Attributes

of a Substitution Error

Omission Error

Example:

The boy jumped the fence. (the word "jumped" was left out by the reader even though it appeared in the text)

Nonexample:

The boy jumped the fence. (all portions of the text read fluently)

Critical attributes:

1. Definition--An individual either omits or does not pronounce a word, syllable, letter sound, or ending.
2. Omissions which alter the meaning of the text so comprehension is negatively affected are errors.

Irrelevant attributes:

1. It does not matter where in the text an omission occurs.

Figure 11

Critical and Irrelevant Attributes

of an Omission Error

Insertion Error

Example: not
The girl is‸coming. ("not" was read although it does not appear in the original text)

Nonexample:
The girl is coming. (all portions of the text read fluently and no extraneous words were inserted)

Critical attributes:

1. Definition--An individual reads a word in addition to the ones in the text.
2. The inserted word alters the meaning of the text.

Irrelevant attributes:

1. It does not matter where in the text the insertion is made.

Figure 12

Critical and Irrelevant Attributes

of an Insertion Error

Ignored Punctuation Error

Example:

He wanted to sing⊙ Birds were in the air. (The period after "sing" was ignored and the two sentences were read as one, causing an alteration in meaning.)

Nonexample:

He wanted to sing. Birds were in the air. (all punctuation marks recognized and fluently read.)

Critical attributes:

1. Definition--An individual fails to note some punctuation in the text when reading.
2. The punctuation which is ignored seriously alters the meaning of the text.

Irrelevant attributes:

1. It does not matter where in the text the ignored punctuation occurs.
2. It does not matter what type of punctuation is ignored.

Figure 13

Critical and Irrelevant Attributes

of an Ignored Punctuation Error

APPENDIX C

The IRI Module
(pp. 161-297)

Introduction

Reading is one of the most important academic skills an exceptional child learns in school; for this reason learning to teach reading is one of the most important skills a prospective special education teacher must develop. Prior to teaching, however, must come planning, which must be based on some type of evaluation. The evaluation may be formal, as in the case of standardized reading tests, or informal, as in the case of teacher-prepared instruments. Regardless of the type of evaluation used to gather information, there are several major tasks which must be accomplished before you, as a teacher, can adequately plan for reading instruction.

1. Since most curriculum guides, commercially produced materials, and teaching aids are prepared on a grade level basis, it is important to know the instructional level of the exceptional child.
2. While knowing the instructional level of the child is important, that knowledge alone does not indicate the specific skills the exceptional child will need help in developing. Thus it will be necessary to do a more thorough diagnosis of each child's reading ability to determine his/her specific strengths and weaknesses.
3. You must determine how each child learns best: visually (by sight); auditorily (by hearing); kinesthetically (by feeling); or by a combination of these modalities. This step is of particular importance with the exceptional child, who may have difficulty utilizing some of these modalities.
4. You must decide what criteria you will use to group the children in your class for instruction and, on the basis of the information you have about the child, assign him/her to an instructional group.

Reading is an active process and, as such, a child's reading performance may alter at any time. For this reason it is important that you never think of reading assessment as complete and the results of the assessment unalterable.

An informal assessment device which teachers may administer as often as necessary and which can assist teachers in acquiring information helpful for answering questions 1, 2 and 4 (determining the reading level, diagnosing reading performance and grouping) is the Informal Reading Inventory (IRI). The purpose of the following module is to acquaint you with the Informal Reading Inventory and assist you in acquiring some skill in using it with exceptional children.

Utilizing an Informal Reading Inventory

Purposes of the Module

The learning package presented here is intended to assist special education teacher trainees in, (a) acquiring a body of basic knowledge about an IRI; (b) coding an exceptional child's performance on an IRI; (c) analyzing the information gained from the coding, and (d) determining a child's reading level based on his/her performance on an IRI.

Prerequisites for Beginning the Module

1. Examination of at least one set of Basal Readers. These generally are located in the School of Education Curriculum Library. As you examine the texts, answer the following questions:

    a. Grade levels covered by the series.

    Are there books for 1st through 4th, 5th through 8th, 1st through 6th grades, etc.?

    b. Number of texts per grade level.

    Is there one grade 3 reader or more than one (3_1 = first grade 3 reader, 3_2 = second grade 3 reader, etc.)?

    c. Length of stories, paragraphs, and sentences.

    Does the length increase as grade levels progress?

    d. The difficulty of the vocabulary.

    e. The size of the print.

    Is the print in the preprimers the same size as the print in the upper level books?

    f. The number and complexity of the pictures at various grade levels.

Criterion. The student's personal statement verifying that he/she has completed the task is an acceptable criterion.

2. Demonstrate the ability to thread and run a tape recorder.

Note: Before continuing on in the program, you are responsible for demonstrating to the moderator of this learning package that you have completed both prerequisites. When you have done this, turn to the next page and begin the Module.

Utilizing an IRI

You are now ready to begin the present module, which has four major sections.

Utilizing an IRI

Section 1	Section 2	Section 3	Section 4
Theory & Construction	Coding the child's performance	Analyzing & scoring the IRI	Interpreting the IRI scores

To successfully complete the present module, you will be expected to:

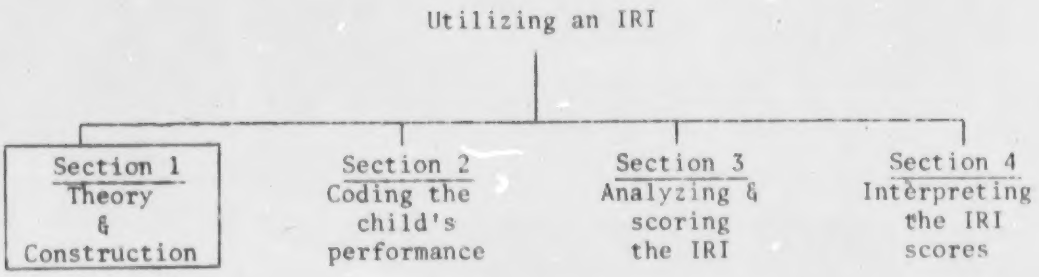
1. Demonstrate mastery of a basic body of knowledge about an IRI by scoring 85% or better on a criterion test.
2. Code an audiotape of an exceptional child reading a basic word recognition list with 97% accuracy.
3. Code an audio tape of an exceptional child reading an IRI selection and receive an accuracy rating of 95% or better on your coding as compared to the coding of an expert.
4. Analyze an oral reading selection, differentiating the errors from the miscues and accurately scoring them. You must score 85% or better on a criterion exercise.
5. Utilizing information from an IRI word list, determine the level on which to begin testing a child to determine his/her instructional reading level. You must score 90% or better on the criterion exercise.

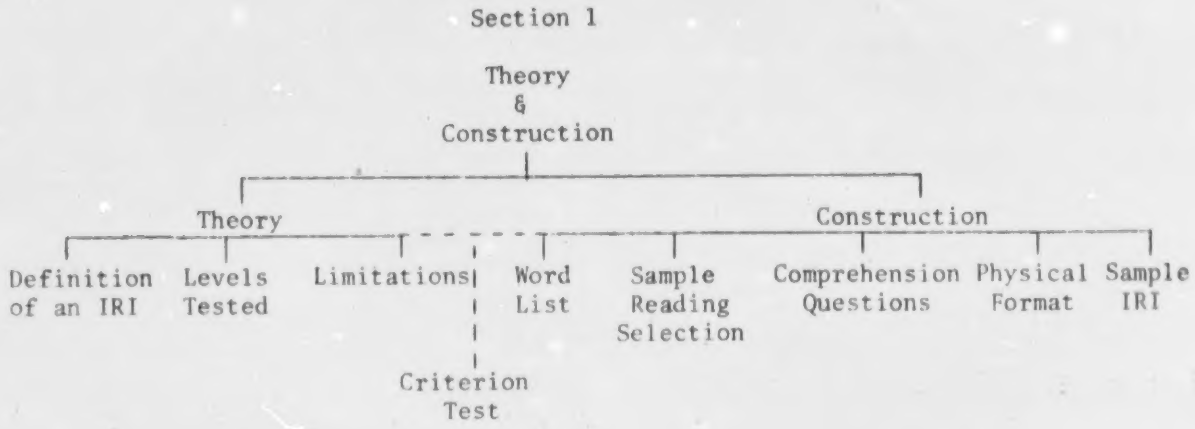
6. Determine the child's instructional reading level based on information obtained from the IRI and demonstrate the ability to do this by losing no more than four points on the criterion exercise.

Time Involved.

1. Section 1 requires approximately 45-50 minutes.
2. Section 2 requires approximately 1 hour 30 minutes to 2 hours.
3. Section 3 requires approximately 1 hour.
4. Section 4 requires approximately 20 minutes.

Instructions. Turn the page and begin Section 1, The IRI: Theory and Construction.


Utilizing an IRI
Section 1
Theory
&
Construction
Section 2
Coding the
child's
performance
Section 3
Analyzing &
scoring
the IRI
Section 4
Interpreting
the IRI
scores


Section 1
Theory
&
Construction
Theory
Construction
Definition
of an IRI
Levels
Tested
Limitations
Criterion
Test
Word
List
Sample
Reading
Selection
Comprehension
Questions
Physical
Format
Sample
IRI

Section 1

The IRI:
Theory and Construction

Introduction

Before using an assessment instrument the teacher should know what it proposes to measure, its strong and weak points, and how it can be used most effectively. The purpose of Section 1 is to assist the teacher in acquiring the basic knowledge necessary to effectively utilize the IRI. At the end of Section 1 you will be required to score 85% or better on a criterion test, thus demonstrating the mastery of this basic body of material about an IRI.

When doing the reading assignments for Section 1, the following information should be sought:

a. Definition and primary purposes of an IRI
b. Advantages of an IRI
c. Major limitations of an IRI
d. The reading levels measured by an IRI and their definitions
e. Source from which an IRI is constructed and the rationale for using this source
f. Basic components of an IRI
g. Construction of the word recognition list
h. Purpose of the word recognition list
i. Purpose of the oral reading selection
j. Purpose of the comprehension questions

A knowledge of points a through j will insure reaching the 85% criterion.

Part 1: Theory and Purpose of an IRI

Instructions. Please read: Zintz, M. The reading process, Chapter 3, pages 52-56.

Use the Section 1 worksheet included in the supplementary information file to record your notes.

Part 2: Constructing an IRI

Instructions. Please read: Handout #1, Constructing an IRI.

A copy of the handout may be obtained from the supplementary information file. Use the Section 1 worksheet included in the supplementary information file to record your notes.

Upon completing Handout #1, review what you have read for Part 1 and Part 2. Be sure you have located information a through j in the Introduction to Section 1. When you feel you are ready, turn to the next page and begin the criterion for Section 1. Once you have begun the test you are not to go back over either of the two readings (Zintz or Handout #1) until after you have scored and graded your test.

Section 1

Criterion Test

Name:

Date:

Score:

Please complete the following short answer essay questions. The point value for a question is listed to the right of the question. To obtain a score of 85% you may lose no more than 5 points.

1. List three basic components of an IRI. 3 points

2. What is the major limitation of an IRI? 1 point

3. Define the following reading levels.
    a. Frustration level: 2 points
    b. Independent level: 2 points
    c. Instructional level: 2 points
    d. Capacity level: 2 points

Please fill in the blanks with the most appropriate word or words. Each blank is worth one point.

4. The basic word recognition list used in the IRI serves two purposes: first, it aids the teacher in determining on what level to a)________ testing; and second, it can be used for b)________purposes. (2 points)

5. The initials I.R.I. stand for ________ ________ ________, which is a test constructed by the teacher primarily to determine a child's ________ reading level, although it may also be used to determine other reading levels. (4 points)

Please complete the following multiple-choice items. Each correct answer is worth two points.

Choices:	Scott-Foresman	Readers Digest
	Ginn	Science Texts
	MacMillan	Checkered Flag Series

6. The teacher wishes to present a unit on science and wants to choose a text book which the children can read independently. She plans to administer an IRI to determine which textbook to use. From which of the above six choices should she choose her IRI selections? (2 points)

____

7. The teacher has purchased a new high interest, low vocabulary set of readers called the Checkered Flag Series, and he wishes to use them with his new special class students. He plans to construct an IRI to determine in which level book to place the children. From which of the above six choices should he choose his IRI selections? (2 points)

____

Please solve the following problem. The point value of each item is listed next to that item.

8. There is a list of 175 words in the back of the text from which you wish to construct a word recognition list. You plan to use an interval of 5 for choosing those words to include in your list. How many words will you have in your list? (2 points)

____

9. Construct a basic word recognition list from the following words using every 3rd word. "Dog" is word number 1

1. dog
cat
boy
chair
mouse
house
sick
fun
ran
work
school
dig
pet
song
music
money
ball
hat (6 points)

10. You have a list of 80 words and you want to construct a word recognition list of 20 words. You would use an interval of ________ for choosing the word. (2 points)

Instructions. When you have completed the test, turn to the Scoring Key on the next page, score and grade your test.

$$\frac{\text{Your Score}}{\text{Total points}} = \frac{\_\_\_\_\_\_}{32} = \_\_\_\_\_\_ \%$$

Instructions. If you lost more than 5 points, return to the reading and find the answers to the questions you missed. When you have corrected your answers go on to Section 2, which follows the Criterion Test Scoring Key.

Section 1

Criterion Test

Scoring Key

Variations on the answers listed below should be accepted.

1. Basic word recognition list +1
   Silent and oral reading selections +1
   Comprehension questions +1
   (Handout #1)

2. The competence of the teacher +1
   (Zintz, page 55)

3. Either functional or operational definitions are acceptable.

   A. Frustration level
      Functional: the level at which the child has obvious difficulty reading. Shows confusion, frustration, and tension in the reading situation (Zintz, page 54)
      Operational: Oral Reading Word Recognition, 90% and under, Comprehension, under 50% +2

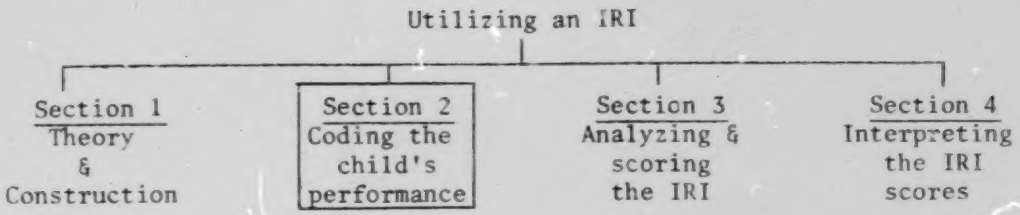
   B. Independent level
      Functional: the level at which the child can read fluently without help (Zintz, page 54)
      Operational: Oral Reading Word Recognition, 99% Comprehension, 90% or 1 error in 100 words and no difficulty in comprehension +2

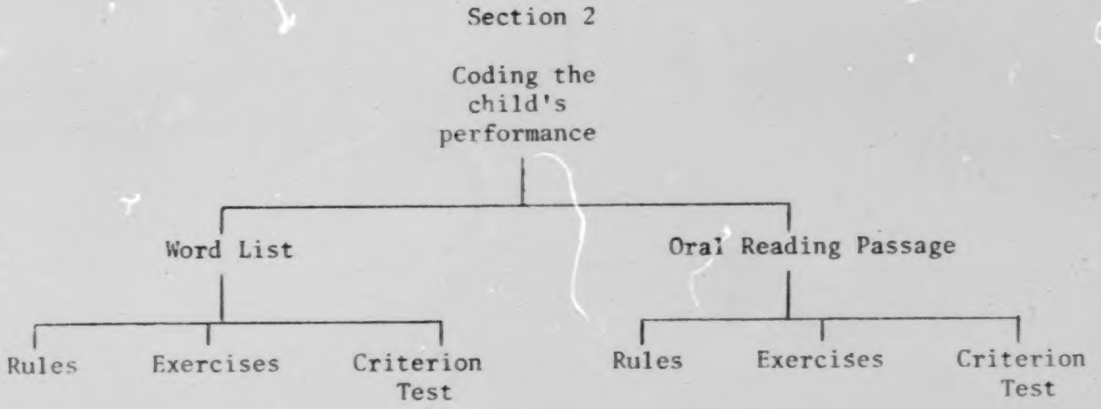
   C. Instructional level
      Functional: the level at which the materials are difficult enough to be a challenge, but not so difficult as to be frustrating--where instruction should take place
      Operational: Oral Reading Word Recognition, 95% Comprehension, 75% or better or 5 errors in 100 +2

   D. Capacity level
      Functional: the level at which the child can understand the ideas and concepts in material that is read to him (Zintz, page 55)
      Operational: Comprehension, 75% or better +2

4. a) begin +1
   b) diagnostics +1

5.	Informal Reading Inventory	+3
	instructional	+1
6.	Science texts	+2
7.	Checkered Flag Series	+2
8.	35	+2
9.	boy	+1
	house	+1
	ran	+1
	dig	+1
	music	+1
	hat	+1
10.	4	+2


Utilizing an IRI
Section 1
Theory
&
Construction
Section 2
Coding the
child's
performance
Section 3
Analyzing &
scoring
the IRI
Section 4
Interpreting
the IRI
scores


Section 2
Coding the
child's
performance
Word List
Oral Reading Passage
Rules
Exercises
Criterion
Test
Rules
Exercises
Criterion
Test

Section 2

Coding an IRI

Introduction

There are two parts of an IRI which require coding: the word recognition list and the oral reading selection. Each time the child fails to read exactly what is printed in the text, the teacher must record the miscue using a special coding system. The purpose of this section of the learning package is to acquaint you with the coding systems used for each of the two IRI parts and to give you practice in using them. The practice will take three forms: paper and pencil exercises, audio recordings of simulated test situations, and audiotapes of exceptional children secured during a real testing situation.

At the end of this section you will be required to code a criterion tape of a word list and an oral reading selection, both of which are examples of the reading performance of exceptional children. You must achieve 95% or better accuracy on your coding as compared to the coding of an expert before you can proceed to the next section.

Achieving the criteria should not be time-consuming nor difficult if you are conscientious about learning the coding systems and doing the exercises. In the event that you do not pass the criterion the first time, further practice will be arranged before you retake the criterion.

Part 1: Coding the Word Recognition List

The word recognition list serves two important functions in an IRI. First, it may be used to determine the level at which to begin testing the exceptional child. Later, information about the child's reading performance on the word list, together with other information from the IRI, may be used for diagnostic purposes. Thus, it is important to be able to correctly code a word list.

Coding Instructions. As the child reads from the student's copy of the word recognition list, the teacher should be coding the child's reading on his/her copy of the word list. The following explains how to code the child's performance.

1. Put a check (✓) behind those words a child pronounces correctly, i.e., dog✓. This code is particularly helpful if the child omits a number of words from the list, as retarded children and poor readers often do.

2. Circle any word which the child omits completely, i.e., (help).
(In the case of EMR children this is a frequently used code as when they see a word they are not familiar with they will often just skip it rather than attempt to pronounce it and risk failure).

3. If the child misreads or substitutes a word or a word part:

    a. Draw a line through the word and write the word the child substitutes above the word which has been crossed out, i.e.,
    pat
    ~~hat~~

    b. If the child substitutes a non-word or a word part, draw a line through the word and write the approximate spelling of what the child reads preceded by the symbol $ for "sounds like,"
    $lep
    i.e., ~~keep~~.

4. If the child corrects his misreading, record the correction above the error and indicate the correction with a ⓒ.
big ⓒ
~~beg~~
i.e., ~~big~~

Directions. Refer to "Exercise 1: Coding the word list" which is a paper and pencil exercise designed to give practice in using the coding symbols. Try not to refer to the coding symbols and their explanations; however, if you find it necessary, you may do so.

Exercise 1

Coding the Word List

Please code the word list using the correct symbols. A description of how each word should be coded is found to the right of the word list. Your coding should be placed to the right of the word list. The first two words have been coded as an example. You are allowed only three errors.

		List	Child's Response	
Example	1.	dog ~~boy~~	misread as "dog"	"boy" was misread as "dog"
Example	2.	girl✓	correct	"girl" was read correctly
	3.	he	correct	
	4.	she	omit	
	5.	it	misread as "to"	
	6.	ran	correct	
	7.	run	misread as "gun" corrected to "run"	
	8.	gun	correct	
	9.	ball	omit	
	10.	bicycle	omit	
	11.	trailor	misread as "tra"	
	12.	dog	correct	
	13.	sheep	correct	
	14.	cow	misread as "now"	
	15.	mice	omit	
	16.	duck	omit	
	17.	down	omit	
	18.	around	correct	
	19.	call	correct	
	20.	walk	misread as "malk"	
	21.	sit	correct	

22.	sing	correct
23.	music	misread as "wusic"
24.	dance	misread as "dog" and corrected to "dance"
25.	sew	omit
26.	saw	misread as "was" and corrected to "saw"
27.	went	correct
28.	where	correct
29.	whether	misread as "where" and corrected to "whether"

Refer to the key for Exercise 1 on the next page and score your own performance.

Key

Exercise 1

Coding the Word List

If any part of a code is incorrect, count the entire code wrong.

1. ~~boy~~ dog
2. girl ✓
3. he ✓
4. she
5. ~~it~~ to
6. ran ✓
7. ~~run~~ ~~gun~~ run ©
8. gun ✓
9. ball
10. bicycle
11. ~~trailer~~ $tra
12. dog ✓
13. sheep ✓
14. ~~cow~~ now
15. mice
16. duck
17. down
18. around ✓
19. call ✓
20. walk $malk
21. sit ✓
22. sing ✓
23. ~~music~~ $wusic
24. ~~dance~~ ~~dog~~ dance ©
25. sew
26. saw ~~was~~ saw ©
27. went ✓
28. where ✓
29. ~~whether~~ ~~where~~ whether ©

Number missed ____________ (This total should include #1-2)

Instructions. If you made more than three errors, go back and study the coding explanations and symbols. Then code Exercise 2: Coding the Word List.

If you made three errors or less, skip Exercise 2 and move to the Instructions for Exercises 3 and 4 on page 22 for further instructions.

Exercise 2

Coding the Word List

Follow the same procedures as used in Exercise 1.

	List	Child's Response
1.	me	correct
2.	you	correct
3.	we	misread as "me"
4.	they	misread as "the" and corrected to "they"
5.	same	correct
6.	many	correct
7.	few	misread as "f-"
8.	yet	omit
9.	until	omit
10.	tomorrow	misread as "more"
11.	yesterday	omit
12.	today	misread as "toda" and corrected to "today"
13.	hope	correct
14.	happy	correct
15.	sad	correct
16.	gay	misread as "girl"
17.	tired	misread as "tried"
18.	stop	correct
19.	start	correct
20.	cold	correct
21.	hot	correct
22.	table	omit

23.	chair	omit
24.	rug	misread as "gri" and corrected to "rug"
25.	tea	correct
26.	tough	omit
27.	single	misread as "sinal"
28.	always	omit
29.	never	correct

Refer to the key for Exercise 2 on the following page and score your own performance.

Key

Exercise 2

Coding the Word List

If any part of a code is incorrect, count the entire code wrong.

1. me ✓
2. you ✓
3. ~~we~~ me
4. ~~they~~ ~~the~~ they ©
5. same ✓
6. many ✓
7. ~~few~~ $f
8. yet
9. until
10. ~~tomorrow~~ more
11. yesterday
12. ~~today~~ ~~$toda~~ today ©
13. hope ✓
14. happy ✓
15. sad ✓
16. ~~gay~~ girl
17. ~~tired~~ tried
18. stop ✓
19. start ✓
20. cold ✓
21. hot ✓
22. table
23. chair
24. ~~rug~~ ~~$gri~~ rug ©
25. tea ✓
26. tough
27. ~~single~~ $sinal
28. always
29. never ✓

Number missed ______________________________

Instructions. If you made any errors, go back and review the coding symbols; then proceed to the next page for further instructions.

Instructions. Exercises 3 and 4 are intended to give you practice in listening to and coding a word recognition list as it is being read. Following these two exercises, you will take the criterion test, so be careful of your coding. If you are consistently making a particular error and are unable to determine the reason, please consult the moderator before beginning these exercises. If you have no problems, proceed.

1. Secure the audiotape entitled, "Word Recognition Audiotape" and thread it onto the tape recorder.

2. Be sure the counter on the tape recorder is at 000.

3. Let the tape run; at approximately 005 on the counter you will hear a voice which will introduce the tape and give you further instructions.

Exercise 3

Word Recognition List (Audiotape)

Audiotape Counter: approximately 005-048

*Word List:

A
about
after
again
all
always
am
an
and
any
are
around
as
ask
at
ate
away

be
because
been
before
best
better
big
black
blue
both
bring
brown
but
buy
by

call
came
can
carry
clean
cold
come
could
cut

did
do
does
done
don't

Instructions. See the scoring key on the next page.

*Words taken from the Dolch 220 Basic Words List.

Key

Exercise 3

Word Recognition List

A ✓
about ✓
~~after~~ alter
~~again~~ $ag
all ✓
always ✓
am ✓
an ✓
and ✓
~~any~~ only
are
around
as ✓
ask ✓
at ✓
ate
away

be ✓
because
been
before
best
better
big ✓
~~black~~ back
~~blue~~ ~~$bl~~ blue ©
both ✓
~~bring~~ $brack
~~brown~~ $br or ($bra)
but ✓
buy ✓
by

call
came
can ✓
carry
~~clean~~ ~~$cl~~ clean ©
~~cold~~ ~~old~~ cold ©
come ✓
could
cut ✓

did ✓
do ✓
does
done
don't

Number missed ________

Instructions. Try to determine the reason for any errors you may have made. If you are unable to determine the reason, see the moderator. If you made three errors or less, proceed to the Criterion Test (press fast forward on tape recorder to counter setting 120 and stop). If you made four or more errors, proceed to Exercise 4 which follows immediately.

Exercise 4

Word Recognition List (Audiotape)

Audiotape Counter: approximately 052-113

*Word List

A
about
after
again
all
always
am
an
and
any
are
around
as
ask
at
ate
away

be
because
been
before
best
better
big
black
blue
both
bring
brown
but
buy
by

call
came
can
carry
clean
cold
come
could
cut

did
do
does
done
don't
down
draw
drink

eat
eight
every

fall
far
fast
find
first
five
fly
for
found
four

from
full
funny

gave
get
give
go
goes
going
good
got
green
grow

has
had
have
he
help
her
here
him
his
hold
hot
how
hurt

Instructions. See the scoring key on the following page.

*Words taken from the Dolch 220 Basic Words List.

Key

Exercise 4

Word Recognition List (Audiotape)

If any part of the code is incorrect, count the entire code wrong.

A ✓
about ✓
~~after~~ $af
again
all ✓
always
am ✓
an ✓
and ✓
any
are
around
as ✓
ask
at ✓
~~ate~~ at
away ✓

be ✓
because
been
before
best
better
big
black
blue ✓
~~both~~ $brot
bring ✓
~~brown~~ ~~bone~~ brown ©
but ✓
buy ✓
by

call
came
can
~~carry~~ care
clean ✓
cold ✓
come ✓
~~could~~ $clud
cut ✓

did ✓
do ✓
does
done
don't
down
draw
drink

eat ✓
eight
~~every~~ $evy

fall ✓
~~far~~ fair (fare)
fast ✓
find ✓
first ✓
five ✓
fly ✓
for ✓
found
four

from
full
funny

gave
get ✓
~~give~~ gave
go ✓
goes
going ✓
good ✓
got ✓
~~green~~ gun
~~grew~~ $gr

has ✓
had ✓
have
he ✓
help ✓
her ✓
here
him ✓
his ✓
hold
hot
how
hurt

Number Missed ________

Instructions. Try to determine the reason for any errors you may have made. If you are unable to determine the reason, see the moderator. If you wish, you may recode this tape for further practice.

When you feel you are ready, turn on the tape recorder and receive instructions for taking the Criterion Test.

Word List Criterion Test

Audiotape Counter: aproximately 120

*Word List

a
airplane
an
and
apple
are
at
away
baby
ball
be
bed
big
birthday
blue
boat
bow-wow
cake
call
can
cap
car
Christmas
come
cookies
cookies
cowboy
daddy
did
dinner
dish
do
dog
down
father
fast
find
fine
fish
for
funny
get
girl
give
go
good
good-by
green
has
have
he
help
her
here
hide
home
home
house
I
in
is
it
jump
kitten
like
little
look
make
may
me
mitten
mother
morning
my
near
no
not
oh
on
one
party
pie
play
pretty
puppy
ran
red
red
ride
run
said
see
she
show
sleep
something
splash
stop
surprise
table
thank
that
the
tree
to
toy
two
up
want
we
what
where
will
with
work
yellow
you
your
your

When you have completed this Criterion Test, check your codes against the "Scoring Key" for the "Word List Criterion Test" on the following page.

*Words taken from the Barbe Reading Skills Checklist

Scoring Key

Word List Criterion Test

a ✓
airplane
an
and ✓
apple
are ✓
at ✓
away
baby
ball
be ✓
~~bed~~ bud
big
birthday
blue
boat
bow-wow
cake
call
can ✓
cap
car ✓
Christmas
come ✓
cookies
cookies
cowboy
daddy
did
dinner
dish

do
dog ✓
~~down~~ brown
father
fast
find
fine
fish
for
funny
get
girl
give
go ✓
good
good-by
green
has
have ✓
he
help
her
here
hide
home
home
house
I
in
is
it

jump
kitten
like
little
look ✓
make
may
me ✓
mitten
mother
morning
my ✓
near
no
not ✓
oh
~~on~~ no
one ✓
party
pie
play
pretty
puppy
ran ✓
red ✓
red ✓
ride
run ✓
said
see ✓
she ✓

show
sleep
something
splash
stop
surprise
table
thank
that
the ✓
tree ✓
to ✓
~~toy~~ tore or ($tor)
two
up ✓
~~want~~ went
~~we~~ my
what
where
will
with
work
yellow ✓
you ✓
your ✓
your ✓

Number missed _____

Instructions. If you missed four or more go back and review, then practice on Exercise 4 and retake the Criterion Test. If you missed three or under proceed to Section 2, Part 2, "Coding the Oral Reading Passage."

Section 2

Part 2: Coding the Oral Reading Passage

It is important that you become practiced in coding an exceptional child's performance on the oral reading passage; for, subsequent to coding, you will analyze the miscues the child has made and determine which of these are actual reading errors. This information will be used to help determine the child's functional reading level. The information gained from the IRI will also be helpful at a later time when the teacher may utilize it to help with a more in-depth diagnosis of the exceptional child's reading skill.

Coding Instructions. As the child reads from his copy of the oral reading passage, the teacher should be coding the child's reading performance on the teacher's copy of the oral reading passage. An explanation of the rules and symbols for coding miscues made during oral reading follows:

1. Circle any word which the child omits completely. If the child omits a group of consecutive words, use one large circle which encompasses all of the words. (This is done because later the omitted group of words will be thought of as one miscue, i.e., The second fox jumped the white picket fence. jumped the white = 1 miscue)
2. If the child mispronounces or substitutes a word or a word part:
   a. Draw a line through the word and write the word the child substitutes above the word which has been crossed out, i.e., $\overset{\text{pat}}{\cancel{\text{hat}}}$.

b. If the child substitutes a non-word or a word part, draw a line through the word and write the approximate spelling of what the child reads, preceded by the symbol $ for "sounds like,"
$lep
i.e., ~~keep~~. (Note: variations in dialect are not counted as miscues--nor are speech defects.)

3. If the child corrects his miscue, record the correction above the error and indicate the correction with a ⓒ
big ⓒ
~~beg~~
i.e., ~~big~~

4. If the child inserts a word, make a caret and write in the insertion, i.e.,
big
the‸dog was black.

5. If the child ignores a punctuation mark, circle the punctuation which is ignored or passed over. This is highly subjective and is often based on the intonation of the child. Try not to use it except in obvious situations, i.e., He ran home⊙ Then he ran upstairs.

6. If the child repeats, underline the repetition twice, i.e., He ran fast.

7. If the child pauses long enough to interrupt the rhythm of the reading, draw a diagonal line where each pause occurs. Marking pauses is somewhat subjective. Pauses are often dependent on the speed of the child's reading. Try not to overuse them, but don't be afraid to use them. Pauses add to the picture of the child's reading which you are seeking, i.e., He/ ran/ to the tree. (Note: If a child pauses a long time before beginning a sentence, place a diagonal before the sentence, i.e., /He ran to the tree. Do not mark a long pause before a sentence if the pause is caused by a physical factor like turning the page.)

Caution. Be sure to listen carefully to exactly what the child reads. Do not anticipate the child's response. It is important to code what the child reads, not what you expect the child to read.

Directions. Study the oral reading paragraph coding rules, then proceed to Exercise 5, which is a paper and pencil exercise designed to give you practice in using the coding symbols.

Exercise 5

Coding the Oral Reading Paragraph

Please code the errors described after each sentence. You may refer back to the coding rules, but try to avoid this practice.

1. The boy ran to the top of a hill. (Child repeated "to the top.")

2. He looked before he ran across the street.
   (Child left off the suffix of "looked" and read "run" instead of "ran.")

3. Dark clouds were seen above the pinnacle of the mountain.
   (Child made the following attempts at pronouncing "pinnacle": "pin," "pina," "pinnacle.")

4. People live in the houses in the city.
   (Child made no attempt to pronounce the word "live," inserted the word "apartment" before the word "house.")

5. The boy ran around the block. He then robbed the bank.
   (Child omitted the period after "block" and mispronounced the word "around" as "rind.")

Directions. When you have completed Exercise 5, refer to the Scoring Key for Exercise 5 on the following page and score your own performance.

Scoring Key

Exercise 5

Coding the Oral Reading Paragraph

See how closely your codes coincide with the criterion codes (each of which has been numbered). If your codes differ, reread the coding rules.

1. The boy ran to the top of a hill.

look run .
2. He ~~looked~~ before he ~~ran~~ across the street.

pinnacle Ⓒ
~~$pina~~
~~pin~~
3. Dark clouds were seen above the ~~pinnacle~~ of the mountain.

apartment
4. People live in the∧houses in the city.

$rind
5. The boy ran ~~around~~ the block⊙ He then robbed the bank.

Number of errors ________________

Instructions. If you know the reason for your errors (if any), proceed to Exercise 6, a further practice in paper and pencil coding.

Exercise 6

Coding the Oral Reading Paragraph

Please code the errors described after each sentence. Try to avoid looking back to the coding rules.

a b c
1. While the owl watched, the two boys crept into the old house.
(Child: (a) omitted "While;" (b) mispronounced "crept" as "cret," then corrected it to "crept;" and (c) inserted "big" before old.)

d e f g h
2. The rain hit the window and scared the little kittens.
(Child: (a) repeated "hit the"; mispronounced "window" as "willow"; (c) paused after "and"; (d) substituted "frightened" for "scared"; and (e) omitted "little.")

i j k l
3. The computer was like a big toy to the man.
(Child: (a) mispronounced "computer" as com, comp, then corrected to "computer"; (b) paused after like; (c) repeated "big"; and (d) omitted "to the man.")

m n o
4. The girls ran home. Across town the game was being played.
(Child: (a) omitted the period after "home"; (b) repeated "town"; and (c) paused after "town.")

p q
5. Heinous crimes were being committed.
(Child: (a) paused before "Heinous"; and (b) substituted "counted" for committed.")

Instructions. Upon completion of Exercise 6, refer to the Exercise 6 scoring key on the following page and score your own performance.

Scoring Key

Exercise 6

Coding the Oral Reading Paragraph

See how closely your codes coincide with the criterion codes. If part of a code is wrong, mark the whole code wrong.

crept ©
a • b ~~$cret~~ c big
1. While the owl watched, the two boys ~~crept~~ into theʌold house.

e g h
d willow f frightened
2. The rain hit the ~~window~~ and/ ~~scared~~ the little kittens.
computer ©
~~$comp~~
i ~~$com~~ j k l
3. The ~~computer~~-was like/ a big toy to the man.

m n o
4. The girls ran home⊙ Across town/ the game was being played.

q
p • counted
5. /Heinous crimes were being ~~committed~~.

Number of errors ________________

Instructions. You should not have made any errors. However, if you did, see the rules and try to determine your problem. If confusion continues, see the moderator. When you are sure of your coding, proceed to the next page for further instructions.

Instructions. Exercises 7 and 8 are intended to give you practice in listening to and coding samples of oral reading of exceptional children. Following these exercises, you will take the criterion test; be careful in your coding. If you are consistently making a particular error and are unable to determine the reason, please consult with the moderator before beginning these exercises. If you have no problems--proceed.

1. Secure the audiotape entitled "Oral Reading Samples" and thread it onto the tape recorder.

2. Be sure the counter on the tape recorder is set at 000.

3. Let the tape run; at approximately 005 on the counter you will hear a voice which will introduce the tape and give you further instructions.

Exercise 7

Oral Reading Samples

Test for Level 3

Source: "Abracadabra" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Audiotape Counter: Approximately 005 to 022 for Instructions
Approximately 022 to 033 for Exercise 7.

Oral Reading Evaluation (Level 3)

Purpose: James is going to show Ginger how to do the trick. Read how he does it and what the next trick is.

Text: p. 4 James showed Ginger how to do the trick. He put a tack in the side of the paper cup. He put the tack between two fingers.

p. 5 Then James gave Ginger a box of crayons. He said, "I'll put my hands behind my back. You put a crayon in my hands. I'll tell you what color the crayon is." Ginger put an orange crayon in his hands.

Instructions. See the following page for instructions on how to score the oral reading selections, then see the scoring key on page 39 and score your performance.

Instructions.

1. When comparing your codes to the codes on the scoring key, ignore all pauses and punctuation omissions. This is necessary since:

   a) both of these codes rely heavily on personal judgment and as such are bound to vary from person to person and,

   b) it is often difficult to code these when only the audiotape performance of the child is available.

2. Regarding "sounds like" ($) errors--if your "sounds like" code differs somewhat from the "sounds like" code on the scoring key do not count this as an error. The important point is that you noted that there was an error, i.e.,

Scoring Key:	$wan went	Your code:	$wi went	This code should be counted as correct

Follow the above 2 procedures when scoring all coding exercises and tests found in this manual.

Key

Exercise 7

Oral Reading Samples

Test for Level 3

Source: "Abracadabra" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Oral Reading Evaluation (Level 3)

Purpose: James is going to show Ginger how to do the trick. Read how he does it and what the next trick is.

Text: p. 4 James showed Ginger how to do the trick. He put a
$track on track
~~tack~~ ~~in~~ the side of the paper cup. He put the ~~tack~~
between two fingers.

$Gisger
p. 5 Then James gave ~~Ginger~~ a box of crayons. He said,
I
"~~I'll~~ put my hands behind my back. You put a crayon
I Hard to
in my hands. ~~I'll~~ tell you what color the crayon is. hear
a yellow back
Ginger put ~~an~~ ~~orange~~ crayon in his ~~hand~~s.

Instructions. Try to determine the reason for any discrepancies between what you coded and the master code. Check the scoring rules and listen to the tape again if necessary. If you are unable to resolve the discrepancies, contact the moderator. When you feel you are ready to continue, turn on the tape recorder and receive the instructions for Exercise 8, Oral Reading Samples.

Exercise 8

Oral Reading Samples

Test for Level 2

Audiotape counter: Approximately 037 to 077 for Exercise 8.

Source: "Let's Play" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Oral Reading Evaluation (Level 2)

Purpose: Now the story tells about what happens after the children hide. Read to find out what happens.

Text: p. 18 Soon William looked behind the wall. He saw Barbara. William and Barbara ran to the tree. Barbara was the first to get there.

p. 19 William saw David on the porch. He saw Neal under the porch. The boys ran to the tree. Neal and David were the first to get there.

Instructions. See the scoring key for Exercise 8 on the following page.

Key

Exercise 8

Oral Reading Samples

Test for Level 2

Source: "Let's Play" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Oral Reading Evaluation (Level 2)

Purpose: Now the story tells about what happens after the children hide. Read to find out what happens.

looked © saw ©
~~$lugged~~ behind © ~~ran~~
Text: p. 18 Soon William ~~looked~~ behind the wall. He saw Barbara.

William and Barbara ran to the tree. /Barbara was the

first to get/ there.

saw © on ©
$Wallup ~~said~~ ~~$ah~~
p. 19 ~~William~~ saw David ~~on~~ the porch. /He /saw /Neal under the
boys ©
~~place~~
porch. The ~~boys~~ ran to the tree. /Neal and David /were

the first to get there.

Instructions. At this time you should be making very few errors. The errors you are making should be due to the quality of the tape or the inability to distinguish what the child is saying, not to a lack of knowledge about the rules, or to coding what you expect the child to say rather than listening to what he or she actually says. If you need further practice, go back and recode the last exercise. When you feel you are ready, turn the tape recorder on and receive instructions for taking the Criterion Test.

Criterion Test

The Lion's Tail

Audiotape Counter: Approximately 080 to 143

Line No.

101 Once upon a time a lion couldn't find his tail.

102 He was very sad.

103 A mouse came along.

104 Why are you sad?

105 I can't find my tail.

106 I'll look for it.

107 The mouse looked in front of the lion.

108 The mouse looked behind the lion.

109 But he couldn't find the lion's tail.

110 A monkey came along.

111 Why are you sad?

112 I can't find my tail.

113 I'll look for it.

114 The monkey looked in front of the lion.

115 The monkey looked behind the lion.

116 But he couldn't find the lion's tail.

Instructions. See the scoring key on the following page.

Scoring Key

Criterion Test

Oral Reading Sample

The Lion's Tail

Line No.

found or friend
101 Once upon a time a lion / couldn't ~~find~~ / his tail.

102 He was / very sad.

103 A mouse / came / along.

mad
104 Why are you ~~sad~~?

can't ©
~~can~~ friend
105 I ~~can't~~ ~~find~~ / my tail.

106 I'll / look for it.

107 The mouse looked in / front of the lion.

108 The mouse looked / behind the / lion.

109 But he couldn't find the lion's tail.

110 A monkey / came along.

111 / Why are you sad?

112 I can't find my tail.

113 I'll / look for it.
The ©

a tail
114 ~~The~~ monkey / looked in / front of the ~~lion~~.

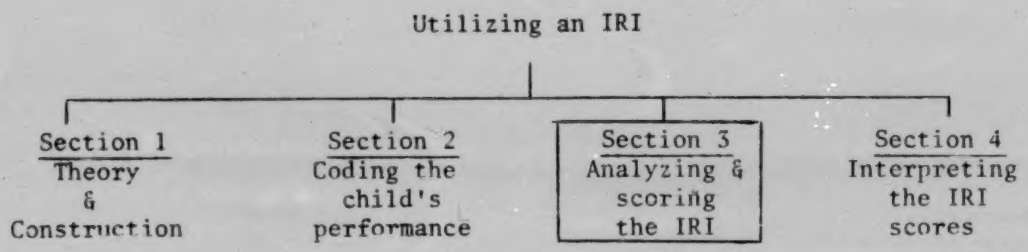
tail
115 / The monkey looked / behind the ~~lion~~.

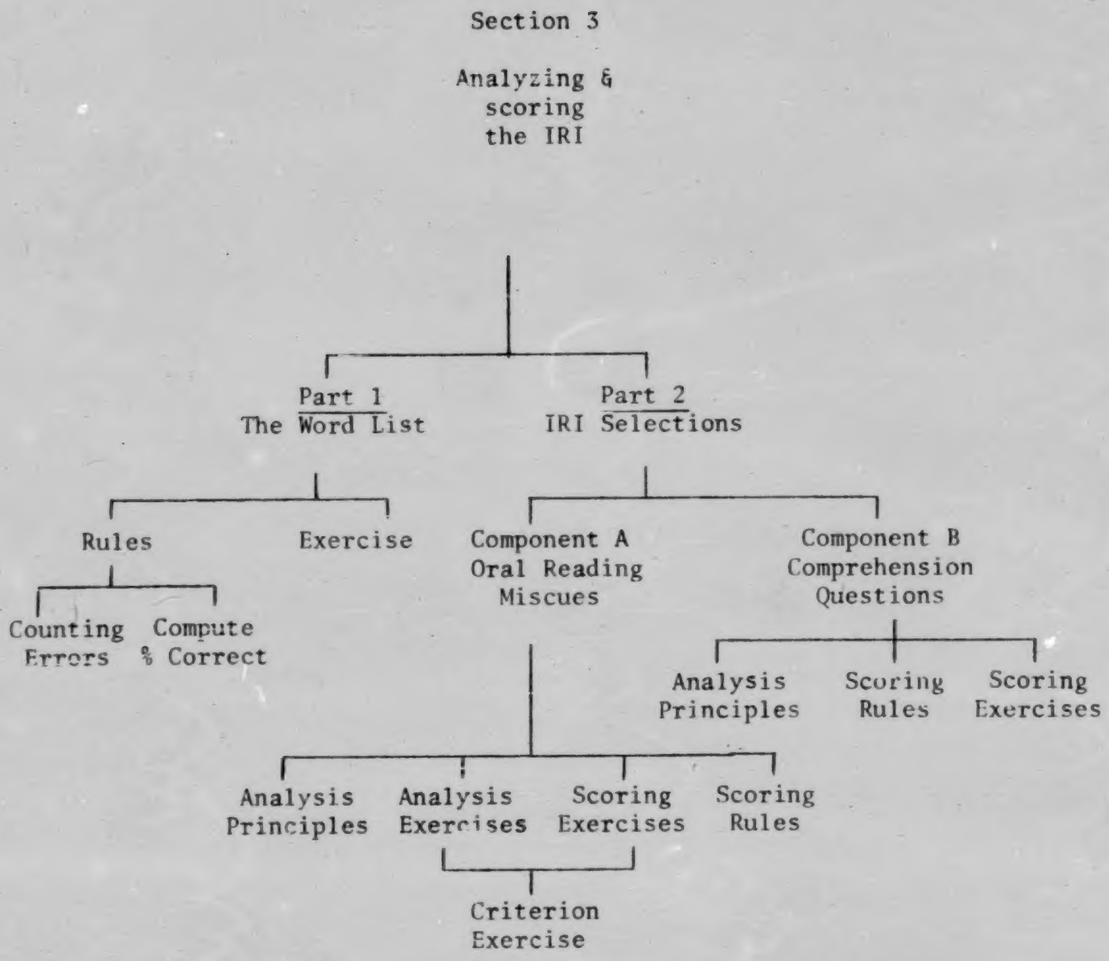
lion's © tail ©
~~tail~~ ~~lion~~
116 But he / couldn't find the ~~lion's~~ ~~tail~~. *

*NOTE: 1. In the last sentence the word "find" may have sounded like "found." It is acceptable if you coded it as such.

2. "lion's tail" was confusing to code. You should count it correct as long as you noted the child had some difficulty, but then corrected ( ) it.

Instructions. If you made only one or two errors, you are doing well and should continue to Section 3. If you made three or four errors, your performance is acceptable and you should continue on to Section 3. If you made five or more errors, review the coding rules, practice on Exercise 8 and then retake the Criterion Test.


Utilizing an IRI
Section 1
Theory
&
Construction
Section 2
Coding the
child's
performance
Section 3
Analyzing &
scoring
the IRI
Section 4
Interpreting
the IRI
scores


Section 3
Analyzing &
scoring
the IRI
Part 1
The Word List
Part 2
IRI Selections
Rules
Exercise
Counting
Errors
Compute
% Correct
Component A
Oral Reading
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Comprehension
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Scoring
Exercises
Analysis
Principles
Analysis
Exercises
Scoring
Exercises
Scoring
Rules
Criterion
Exercise

Section 3

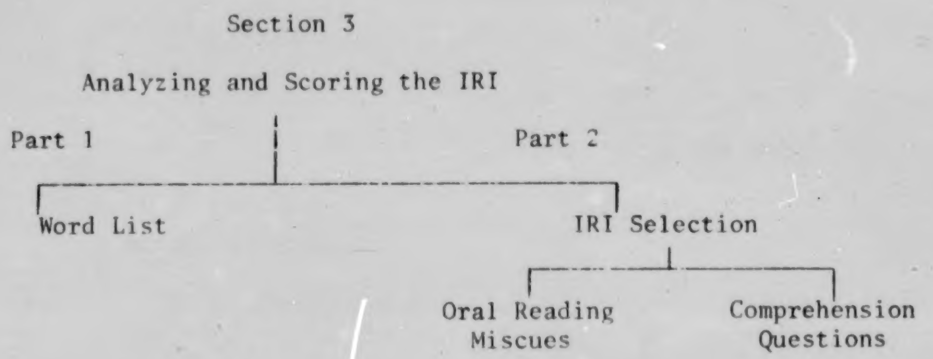
Analyzing and Scoring the IRI

Introduction

There are three parts of an IRI which require analyzing and scoring. The purpose of this section of the learning package is to acquaint you with principles to guide your analysis and rules to facilitate uniform scoring. Practice in applying both the principles and the rules will also be available.

By the end of Section 3 you will have been asked to analyze and score a word recognition list and an IRI selection. (Remember the IRI selection has two components which will require analysis and scoring: the oral reading miscues and the comprehension questions.)

Section 3 will be divided as follows:


Section 3
Analyzing and Scoring the IRI
Part 1
Part 2
Word List
IRI Selection
Oral Reading Miscues
Comprehension Questions

You will be required to demonstrate your ability to analyze and score both a word list and an IRI selection by obtaining a score of 90% or better on a criterion test.

Part 1: Scoring the Word List

Scoring the word list is a very simple process.

Scoring rules.

1. Count the number of words correctly recognized
    a. Count the words with a (✓) after them.
    b. Count any corrected (ⓒ) miscues.
2. Obtain the percent of words correctly recognized by dividing the number correct by the total number of words.

example: $\frac{\#\ \text{correct}}{\text{total}\ \#\ \text{words}}$

Instructions. Go on to Exercise 11 which is designed to give you practice in determining the number and percent of words correctly recognized.

Exercise 11

Scoring the Word List

Please complete the following exercises. You may refer back to the rules.

I. Word list grade level: Second Preprimer

all ✓
comes ✓
hi ✓
who

a ✓
truck
~~says~~ ~~$sa~~ says Ⓒ
her ✓

have ✓
lunchroom ✓
I ✓
~~books~~ look

fire ✓
trucks
~~away~~ $a away Ⓒ
high ✓

1. Number correct ________
Total words 16
2. % correct ________

II. Word list grade level: First Preprimer

the ✓
~~Bing~~ ~~$B~~ Bing Ⓒ
and ✓

~~after~~ $apter
away ✓
~~big~~ dig

bee ✓
lost ✓
hop ✓

~~pond~~ ~~$pen~~ pond Ⓒ
up ✓
Sandy ✓

3. Number correct ________
Total words 12
4. % correct ________

III. Word list grade level: Second Preprimer

to ✓
then ✓
not ✓
Jan ✓

hat ✓
got ✓
at ✓
wet ✓

happy ✓
but ✓
is ✓
for ✓

jumped ✓
on ✓
still ✓
~~shadow~~ $sha

5. Number correct ________
Total words 16
6. % correct ________

Scoring Key

Exercise 11

Scoring the Word List

1. 12
2. 75%
3. 10
4. 83%
5. 15
6. 93 or 94% (93.7)

Underlined: Instructions

Instructions. If you made computation errors, be more careful. If you made interpretive errors, refer to the rules on interpreting scores. When you are satisfied that your errors, if any, are corrected, proceed to Part 2: Analyzing and Scoring the IRI Selection, on the following page.

Part 2: Analyzing and Scoring the IRI Selection

There are two components of the IRI selection which require analyzing and scoring: Component A, the oral reading miscues; and Component B, the comprehension questions.

Component A: Analyzing the oral reading miscues. The single most important aspect of scoring the oral reading performance of a child is the process of determining which miscues will be counted as errors. This is important because (a) the number of errors a child makes directly affects the level at which the child will be placed, and (b) the quality of the errors will later affect the emphasis of instruction.

Analysis principles: The following are some simple generalizations to follow when distinguishing errors from miscues.

1. Mispronunciations

   a. Are considered errors when they indicate an inability to correctly determine the pronunciation of an unfamiliar word.

   $tow
   $~~to~~
   $~~t~~
   example: He went to ~~town~~.

   $sept
   The boy ~~crept~~ to the house.

   b. Are considered miscues when:

      1. They are instances of regional or subcultural dialects.

      $Dat $wif $dem
      example: ~~That~~ boy went ~~with them~~.

      2. They are examples of a speech variation.

      $wabbit
      example: The ~~rabbit~~ was furry.

NOTE: b1 and b2 are very important principles to remember when working with exceptional children. b1 is important because quite often EMR children come from environments where a subcultural dialect is the language spoken. These children must translate the language of the text book into their own language. Reading for these children is a double burden interpreting symbols and translating the symbols into an understandable form. It is important that the children not be penalized for successfully accomplishing this task. b2 is important for a special teacher to remember because exceptional children, due to a variety of causes (slow development, physical complications, emotional problems, etc.), may exhibit speech irregularities. A speech irregularity, however, does not indicate lack of reading ability and a child should not be penalized academically for what is primarily a physical characteristic.

2. Substitutions

   a. Are considered errors when they alter the intended meaning.

      still
      example: The wolf ~~slid~~ down the chimney.

      laughed
      He ~~landed~~ in the water.

   b. Are considered miscues when they do not change the meaning.

      house
      example: The first pig made a ~~home~~ of straw.

      mad
      The boy was very ~~angry~~.

      (Note: The child has obviously read and understood the meaning of the sentence; he has simply inserted his or her own language patterns.)

3. Omissions

   a. Are considered errors when:

      1. They alter the meaning so that comprehension is negatively affected.

      example: The second fox jumped the fence.

      The boy jumped the fence.

2. They indicate an inability to attack an unfamiliar word even if the omission of the word does not seriously alter the intended meaning. (Usually you would be able to determine this by the amount of time the child paused before omitting the word or by repeated omissions of the same word.)

example: The light brown dog wagged his tail.

b. Are considered miscues when they do not seriously alter the meaning and are words which the teacher (through familiarity with the child's reading) knows the child can read.

example: The light brown dog wagged his tail.

But she still wanted a little pup.

(Note: The teacher would need to know specifically that the child can read the word and has in this instance just overlooked it.)

4. Corrections are miscues and never counted as errors.

5. Insertions

a. Are considered errors when they alter the meaning and adversely affect comprehension.

                    not
example: The girl is∧coming.

b. Are considered miscues when they do not seriously alter the meaning.

                                        of
example: She took the cover off∧the pot.
                            little
She loved the∧kitten.

6. Ignoring punctuation

a. Is considered an error when it alters the meaning and adversely affects comprehension.

example: He wanted to sing⊙ Birds were in the air.

b. Is considered a miscue when it does not seriously alter the meaning.

example: First she ran to the kitchen⊙ Then to the TV.

7. Repetitions are considered miscues and never counted as errors.

example: The boy ran to the top of the hill.

The rain hit the window.

8. Pauses are considered miscues and never counted as errors.

example: Girls like to/ wear pretty clothes.

When the clock/ strikes twelve, the ghost/ appears.

Instructions. Study the Analysis Principles; then turn to Exercise 12, Errors or Miscues, on the following page. Try to accurately complete the exercise by using only the information contained in the exercise. Try not to look back at the interpretation rules.

Exercise 12

Errors or Miscues

Instructions. Read the following definitions:

1. The child makes an oral reading miscue when what he/she reads differs in some way from what is printed in the text.

2. An oral reading miscue is considered an error when the textual alteration which the child makes alters the intended meaning and/or indicates an inability to successfully decipher an unfamiliar word. (Harris, 1972)

Instructions. Based on the two definitions, decide which of the oral reading miscues below (a) would be considered an error; (b) would not be considered an error. In the blank space following each sentence, indicate whether the miscue in the sentence is an error (E) or no error (NE). Remember to ask yourself these questions: Does it change the meaning? Does it indicate an inability to decipher an unfamiliar word?

1. Mispronunciation of a word:

$sept
a. The boy ~~crept~~ to the house ______

$motaine
b. The ~~mountain~~ was very high. ______

$Dat $wif $dem
c. ~~That~~ boy went ~~with them~~. ______

$wabbit
d. The ~~rabbit~~ was furry. ______

$tow
~~$to~~
~~$t~~
e. He went to ~~town~~. ______

2. Substitutes of a word:

still
a. The wolf ~~slid~~ down the chimney. ______

laughed
b. He ~~landed~~ in the water. ______

home
c. The first pig made a ~~house~~ of straw. ______

mad
d. The boy was very ~~angry~~. ______

3. Omissions.

a. The second fox jumped the fence. ______

b. The boy jumped the fence. ______

c. The light brown dog wagged his tail. ______

4. Corrections

big ⓒ
~~beg~~
a. The ~~big~~ dog bit the boy. ____
shone ⓒ
~~shew~~
b. Bright lights ~~shone~~ on the lawn. ____

5. Insertions.

off
a. When the tree swayed the kitten fell∧ ____
not
b. The girl is∧coming. ____
of
c. She took the cover off∧the pot. ____
little
d. She loved the∧kittens. ____

6. Ignoring punctuation

a. First she ran to the kitchen⊙
Then to the TV. ____

b. He wanted to sing⊙ Birds were
in the air. ____

7. Repetitions

a. The boy ran to the top of the hill. ____

b. The rain hit the window. ____

8. Pauses

a. Girls like to/wear pretty/clothes. ____

b. When the clock/strikes/twelve the
ghost/appears. ____

Instructions. When you have completed the exercise, go on to the following page and compare your answers to those on the scoring key.

Scoring Key

Exercise 12

Error or Miscue

1. Mispronunciations or substitutions of word parts:

a. E
b. E
c. NE
d. NE
e. E

2. Substitution of words

a. E
b. E
c. NE
d. NE

3. Omissions

a. E
b. E
c. E (See Analysis Principle 3, p.)

4. Corrections

a. NE
b. NE

5. Insertions

a. NE
b. E
c. NE
d. NE

6. Ignoring punctuation

a. NE
b. E

7. Repetitions

a. NE
b. NE

8. Pauses

a. NE
b. NE

Instructions. If you made any mistakes, go back and re-read the analysis principles. Try to decide why you made your error. When you are ready, turn the page and study the "Summary Table" on "Miscue Analysis Principles," then continue on to Exercise 13.

Summary Table

Miscue Analysis Principles

	Miscue If	Error If
1. Mispronunciation	dialect or speech variation	unsuccessful attempt to correctly pronounce a word
2. Substitutions	there is no change in meaning	alters intended meaning
3. Omissions	no serious alteration in meaning; child skips word teacher knows he can read	alters meaning and affects comprehension
4. Corrections	(are miscues and never errors)	
5. Insertions	no serious alteration in meaning	alters meaning and affects comprehension
6. Ignoring punctuation	no serious alteration in meaning	alters meaning and affects comprehension
7. Repetitions	(are miscues and never errors)	
8. Pauses	(are miscues and never errors)	

Instructions. Continue on to Exercise 13.

Exercise 13

Identifying Errors

Which of the following miscues would you consider an error? In the blank space following each sentence indicate whether the miscue in the sentence is an error (E) or no error (NE).

Important Note: Code all omissions as errors. Follow this procedure on all paper and pencil exercises. This is necessary because paper and pencil exercises do not offer enough information about the child's performance for you to make adequate judgments about whether the omission is an error or a miscue.

1. The boy ran to the top of the hill. ______

run
2. He looked before he ~~ran~~ across the street. Ⓒ ______

pinnacle
$pina
3. Dark clouds were seen above the ~~pinnacle~~ of the mountain. ______

4. People live in the houses in the city. ______

5. The boy ran around the block⊙ That evening the bank was robbed. ______

Instructions. See the scoring key on the next page.

Key

Exercise 13

Identifying Errors

1. NE
2. NE
3. NE
4. E
5. E

Instructions. If any of your answers differs from those in the key, refer back to the analysis principles and determine which principle should have applied. When you are satisfied you have resolved any discrepancies, move on to Exercise 14, Identifying Errors.

Exercise 14

Identifying Errors

Which of the following miscues would you consider an error? Indicate E for error, NE for no error.

2
crept ©
1 ~~$cret~~ 3 very
1. While the owl watched, the two boys ~~crept~~ into the^old house.

5 6 7
4 willow scared
2. The rain hit the ~~window~~ and ~~frightened~~ the little kittens.

8
computer ©
~~$comp~~ 9 10 11
3. The ~~computer~~ was like/ a big toy to the man.

13
12 ⊙
4. The girls ran home⊙ Across town the game was being played.

15 16
14$Hen counted
5. / ~~Heinous~~ crimes were being ~~committed~~.

	Text	Miscue	Error or No Error
1.	While	While	______
2.	crept	crept © ~~$cret~~	______
3.	the old	very the^old	______
4.	hit the	hit the	______
5.	window	willow	______
6.	frightened	scared	______
7.	little	little	______
8.	computer	computer © ~~$comp~~	______
9.	like a	like/a	______

	Text	Miscue	Error or No Error
10.	big	big	
11.	to the man	to the man	
12.	.	⊙	
13.	town the	town∧the	
14.	Heinous	/Heinous	
15.	Heinous	$Hen	
16.	committed	counted	

Instructions. See the scoring key on the next page.

Scoring Key

Exercise 14

Identifying Errors

1. E
2. NE
3. NE
4. NE
5. E
6. NE
7. E
8. NE
9. NE
10. NE
11. E
12. E
13. E
14. NE
15. E
16. E

Instructions. If any of your answers differ from those in the key, refer back to the interpretation rules and determine what rules should have applied. When you are satisfied you have resolved any discrepancies, proceed to the Scoring Rules on the next page.

Scoring rules: Once you have analyzed the miscues and determined which are errors, the next step is to compute the percent of word recognition. The procedure is a simple one.

1. Counting the errors

   a. If the child omits or inserts a phrase, count only one error for the entire phrase.

   example: The bird sang in the tree behind the house
   1 error

   b. If the child miscues on a proper name numerous times during the reading, count it as only one error.

   $Wallup $Wallup
   example: ~~William~~ went to town. While ~~William~~ was in town, Jan called.
   1 error

   (NOTE: This applies only to proper names.)

   c. If the child makes one error in a sentence and then substitutes another word later in the sentence to maintain proper grammatical function, count this as one error.

   girl was
   example: The ~~girls~~ ~~were~~ very happy.
   1 error

   d. For all other errors, count one for each error.

2. Computing the percent of word recognition

   a. Count the total number of words in the selection and subtract the number of errors to obtain words correctly recognized.

   b. Divide the number of words correctly recognized by the total number of words.

   example: words correctly recognized / total # of words

Instructions. Go on to Exercises 15, 16, and 17, determining percent of word recognition and (a) count the number of errors, (b) compute the percent of word recognition.

Exercise 15

Determining Percent of Word Recognition:

Counting the Errors

Instructions. The following exercise is intended to give practice in counting errors; thus all other information has been supplied. The first example is completed for you. Please complete numbers 1, 2, and 3. Compare your answers to the answers on the scoring key as you complete each example.

Example: $enj
~~$en~~
The children ~~enjoyed~~ reading the story about Noah and his animals.
storybook
Noah was one of their favorite^characters.

	Text	Reader	Error or Miscue	Error Count
Answer:	enjoyed	omit	E	1
	Noah	omit	E	1
	Noah	omit	E	0
	favorite characters	storybook favorite^ characters	NE	0

Total Errors: 2

(NOTE: "Noah" although missed twice was only counted as one error. See counting rules.)

$eary $Ca at
1. He went to town while it was still ~~early~~ so ~~Carol~~ would not be^home
dark ⓒ
~~$da~~ $Ca $knowed
alone after ~~dark~~. ~~Carol~~ felt much better when she ~~knew~~ he would be

home early.

	Text	Reader	Error or Miscue	Error Count
Answer:	He	omit	E	______
	town while	omit	E	______
	early	$eary	E	______

	Text	Reader	Error or Miscue	Error Count
Answer:	Carol	$Ca	E	________
	be home	at be∧home	NE	________
	dark	$da dark ©	NE	________
	Carol	$Ca	E	________
	knew	$knowed	NE	________
	he	omit	E	________
			Total Errors:	________

2. Upon entering the room, the boys knew something was wrong. The air

healthy
was cold and the atmosphere was **heavy**.

	Text	Reader	Error or Miscue	Error Count
Answer:	Upon entering	omit	E	________
	knew something was	omit	E	________
	was	omit	E	________
	was	omit	E	________
	heavy	healthy	E	________
			Total errors:	________

woman was very
3. The **women were**∧happy the girls/would be able to help get ready

for the party.

	Text	Reader	Error or Miscue	Error Count
Answer:	women	woman	E	________
	were	was	E	________
	were happy	very were∧happy	NE	________
	girls would	girls / would	NE	________
	able	able	NE	________
			Total Errors:	________

Scoring Key

Exercise 15

1.

Text	Reader	Error or Miscue	Error Count
He	omit	E	1
town awhile	omit	E	1
early	$eary	E	1
Carol	$Ca	E	1
be home	be$\overset{\text{at}}{\wedge}$home	NE	0
dark	$da dark Ⓒ	NE	0
Carol	$Ca	E	0
knew	$knowed	NE	0
he	omit	E	1
		Total Errors:	5

(NOTE: "He" is counted as one error each time it is missed as the word "he" is not a proper noun. The phrase "town awhile" is counted as one error. "Carol" being a proper name is only counted the first time it's missed. See rules.)

2.

Text	Reader	Error or Miscue	Error Count
Upon entering	omit	E	1
knew something was	omit	E	1
was	omit	E	1
was	omit	E	1
heavy	healthy	E	1
		Total Errors:	5

3.

Text	Reader	Error or Miscues	Error Count
women	woman	E	1
were	was	E	0
were happy	were $\overset{\text{very}}{\wedge}$ happy	NE	0
girls would	girls / would	NE	0
able	able	NE	0
		Total Errors:	1

(NOTE: Substituting the word "woman" for "women" altered the meaning of the sentence considerably, so it was identified as an error and counted as one error. Substituting the word "was" for "were" was identified as an error but not counted. The following rule applies: When a second substitution error is made in a sentence for the purpose of altering the tense to agree with the first substitution, only count the first substitution.)

Instructions. The next three exercises require you to count the errors and compute the percent of word recognition. Be sure you know the simple arithmetical procedures for computing percent of word recognition. When you are ready turn the page and begin Exercise 16, Counting Errors and Computing Word Recognition.

Formula for computing percent of word recognition:

$$\frac{\text{Words correctly recognized}}{\text{Total \# of words}} = \underline{\qquad\qquad}\%$$

Exercise 16

Counting Errors and Computing

Word Recognition

Source: "Let's Play" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois, 60025, 1971.

Oral Reading Evaluation (Level 2)

Purpose: Now the story tells about what happens after the children hide. Read to find out what happens.

looked © saw ©
~~slugged~~ behind © ~~ran~~
Text: p. 18 Soon William ~~looked~~ behind the wall. He ~~saw~~ Barbara

William and Barbara ran to the tree. Barbara was the first

saw © on ©
~~said~~ a
to/get/there.

p. 19 William ~~saw~~ David ~~on~~ the/ porch. /He / saw / Neal under
boys ©
~~place~~

the porch. The ~~boys~~ ran to the tree. Neal and David were the

first to / get there.

Instructions. Count the errors and compute the percent of word recognition. When you have finished compare your answers to the answers in the scoring key found on the next page.

(NOTE: Be very careful in counting the errors as the figure you obtain will directly affect the percent of word recognition. To facilitate your work, only the errors are listed below, not both the error and the miscue as was done previously. However, you must still determine which of the errors will be counted.)

ERRORS:

	Text	Reader	Error Count
1.	William	omitted	
2.	Barbara	omitted	
3.	William	omitted	
4.	Barbara	omitted	
5.	Barbara	omitted	

Text	Reader	Error Count
6. first	omitted	
7. William	omitted	
8. were	omitted	
9. first	omitted	

Total Errors: ________

Number of words correctly identified: ____________

Total number of words: 50

Percent of Word Recognition: ____________

Scoring Key

Exercise 16

Counting Errors and Computing Word Recognition

Total Errors: 5

1. William = 1

2. Barbara = 1

6. first = 1

8. were = 1

9. first = 1

(NOTE: The word "first" was missed twice by the child and each time it was missed it was counted as one error. Although the proper names "William and Barbara" were each missed repeatedly, each was only counted the first time it was missed. Refer to coding rule "1.b.")

Number of words correctly identified: 45

Total number of words: 50

Percent of Word Recognition: 90%

50 total words
- 5 errors

45 words recognized

Instructions. If you have any questions, please refer back to the rules. If there are no questions, go on to Exercise 17.

Exercise 17

Counting the Errors and Computing Word Recognition

Source: Abracadabra (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Oral Reading Evaluation (Level 3)

Purpose: James is going to show Ginger how to do the trick. Read how he does it and what the next trick it.

Text: p. 4 James showed Ginger how to/ do the trick. He put a tack/
the © tack ©
for a ~~pin~~
in the side ~~of~~ / the paper cup. He put ~~the~~ ~~tack~~ between two

fingers.

I'll ©
Jim ~~I~~
p. 5 Then ~~James~~ gave Ginger a box of/ crayons. He said, "~~I-I-I~~/

put/ my/ hands behind my back. You put a crayon in my hands.
you ©
~~S~~tile~~your~~
I'll ~~tell~~ ~~you~~ what color the crayon is." Ginger put an orange

crayon in his hands.

Instructions. Note those miscues which have been considered errors and those which have not and then, (a) count the errors; and (b) compute the percent of word recognition. When you finish, compare your answers to the scoring key on the page following Exercise 17.

ERRORS:

Text	Reader	Error Count
1. James showed Ginger how	omitted	______
2. do the trick	omitted	______

	Text	Reader	Error Count
3.	in the side	omitted	______
4.	of	for	______
5.	between	omitted	______
6.	Then	omitted	______
7.	James	Jim	______
8.	Ginger	omitted	______
9.	crayons	omitted	______
10.	hands behind my back	omitted	______
11.	crayon	omitted	______
12.	tell	$tile	______
13.	what color	omitted	______
14.	crayon	omitted	______
15.	(last sentence)	omitted	______
			Total Errors: ___

Number of words correctly recognized: _____

Total # of words: 66

Percent of Word Recognition: _____

Scoring Key

Exercise 17

Counting the Errors and Computing Word Recognition

Number of errors: 13

(NOTE: Errors 7 and 8 were not counted because both are proper names and the child had already missed both of them in the first phrase.)

Number of words correctly recognized: 53

Total # of words: 66

Percent of Word Recognition: 80%

66 total words
-13 errors

53 words correctly identified

Instructions. If you were completely correct, you are doing very well. If you became confused in considering whether to count error #1 and errors numbers 7 and 8--this is an understandable problem which called for some personal interpretation of the rules. It is entirely possible that you may have allowed one point to each error (#s 1, 7 & 8). In that case, the error count becomes 15, words recognized becomes 51, and the percent of word recognition becomes 77%.

At this time please be sure you can: identify the errors, count the errors and compute the percent of word recognition. If you are unsure of any of these, refer back to the rules on page 62. When you are satisfied that you are ready, turn to the next page and begin the criterion exercise for Section 3, Part 2, Component A, Analyzing the Oral Reading Miscues.

Criterion Exercise 18

Analyzing a Coded Oral Reading Selection

Instructions. The following exercise is not difficult, but it requires that you be very careful with your answers to each section as each aspect of the exercise is dependent on the section which directly precedes it.

You are asked to:

1. Analyze the miscues and identify the errors. Put an E in Column 1 if you consider the miscue an error.

2. Count and total the errors. Put the error count in Column 2 and the total error count at the bottom of Column 2.

3. Compute the percent of word recognition.

Please do not look back at the Module for help in answering the questions. Be careful--you may not miss more than six points on the criterion exercise.

NOTE: For the purpose of these exercises you are to count all omissions as errors.

Source: "The Little Knight" (Book D). Scott-Foresman Reading System.
Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Oral Reading Evaluation (Level 4)

Purpose: The little knight is going to be surprised at what he sees.

Read to find out what he sees and what the dragon says.

road around
Text: p. 12 Just then the dragon ~~reared~~. The big knights turned∧ /

keep
p. 13 and ran. But the little knight ~~kept~~ on going. He was a

$bra watched
~~brave~~ little knight who ~~wasn't~~ afraid of any old dragon.

keep
He ~~kept~~ on going up the hill until he got to the dragon's

cave.

p. 14 The little knight tiptoed into the cave. He saw the
dragon. The dragon was crying. The knight asked, "Why
are you crying?"

fraid
p. 15 "I'm crying because everybody is ~~afraid~~ of me," said the
whoes
dragon. "No ~~one~~ comes to see me. I don't have any
friends."

I'll ©
~~I'm~~ but
The little knight said, "I came to see you. ~~I'll~~ be your
friend."

Miscues:

	Text	Reader	Column 1 Errors	Column 2 Errors
1.	roared	road ~~roared~~		
2.	turned and	around turned∧and		
3.	kept	keep ~~kept~~		
4.	brave	$bra ~~brave~~		
5.	wasn't	watched ~~wasn't~~		
6.	kept	keep ~~kept~~		
7.	tiptoed into	tiptoed into		
8.	asked	asked		

	Text	Reader	Column 1 Errors	Column 2 Errors
9.	afraid	fraid ~~afraid~~		
10.	one	whoes ~~one~~		
11.	little	little		
12.	I'll	I'll Ⓒ ~~I'm~~ ~~I'll~~		
13.	be	but ~~be~~		
14.	your	your		

Total Errors ______

Total # of words in the selection: ______

Percent of word recognition: ______
(Please show your calculations for percent of word recognition)

Instructions. Be sure of your work before you grade your performance on this selection. When you are sure you have correctly completed the exercise, turn to the scoring key and correct exercise 18.

Scoring Key

Exercise 18

Analyzing a Coded Oral Reading Selection

Instructions. Mark each correct answer with a check (✓). Count each correct answer as 1 point. There are a total of 18 points (8 points in column 1, 8 points in column 2, 1 point for total errors and 1 point for percent of word recognition). If you miss the actual "percent of word recognition" but used the correct calculation method (see scoring key), then give yourself a point for "percent of word recognition."

Total points: ________

Your score: ________

# missed: ________

Miscues:

Text	Reader	Column 1 Errors	Column 2 Errors
1. roared	road ~~roared~~	E	1
2. turned and	around turned ∧ and		0
3. kept	keep ~~kept~~		0
4. brave	$bra ~~brave~~	E	1
5. wasn't	watched ~~wasn't~~	E	1
6. kept	keep ~~kept~~		0
7. tiptoed into	tiptoed into	E	1
8. asked	asked	E	1
9. afraid	fraid ~~afraid~~		0
10. one	whoes ~~one~~	E	1

	Text	Reader	Column 1 Errors	Column 2 Errors
11.	little	little ©	E	1
12.	I'll	I'll ~~I'm~~ ~~I'll~~		0
13.	be	but ~~b~~e	E	1
14.	your	your		0

Total Errors: 8

Total # of words in the selection: 102

Percent of word recognition: 92%
(Please show your calculations for percent of word recognition)

Instructions. If you made three mistakes or under, you are doing well and should have no trouble with the final test! You still may wish to determine the reason for whatever error(s) you made.

If you missed over four points, you have not mastered the material in this level as well as you will need to successfully complete the final test. You should go back and review those sections which are giving you trouble before you begin Component B, Analyzing the Comprehension Questions found on the next page.

Component B, Analyzing the Comprehension Questions.

Analysis principles:

1. The answers to lower level questions are correct when they accurately answer the question. This is easy for a teacher to determine since the information necessary to answer a lower level question is found within the reading selection.

example: Text = Tom was six years old.

Question = How old was Tom?

Correct Answer = Six.

Text = The boy liked to sing.

Question = What did the boy like to do?

Correct Answer = Sing.

2. Any acceptable answer to an upper level question should be correct as long as it provides relevant information and is potentially correct. Only if the answer completely misses the point of the question, should it be scored wrong. The rationale is that while higher level questions ask the child to make inferences, value judgments, and solve problems based on material from the story, there is no specific answer to the question within the story. There being no specifically correct answer, it is difficult to count what the child answers as wrong unless the answer is completely irrelevant to the question.

example: Text = The Three Little Pigs

Question = Do you think the wolf was strong? Why?

Correct Answer = Yes, because the pigs were afraid of him.

Correct Answer = No, because the pigs beat him.

Wrong Answer = I like the three little pigs.

Wrong Answer = He was hungry and he wanted to eat the pigs.

NOTE: If in the future you would like to increase your questioning skills see: Greenough, Karen N. *Self-Instructional Training Manual for Teachers' Questioning Skills*, Center for Innovation in Teaching the Handicapped, School of Education, Indiana University, Bloomington, Indiana, 47401.

Exercise 19

Analyzing Comprehension Questions

Instructions. Put a "C" in front of the correct answers and an "X" in front of the wrong answers.

Source: "Abracadabra" (Book D) Scott-Foresman Reading System, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Text: p. 2 James was doing magic tricks for Ginger. He said,

"See this paper cup. I'll say a magic word. Then

I'll let go of the cup. But it won't fall."

p. 3 James said, "Abracadabra!" He let go of the cup.

It didn't fall!

Ginger asked, "How did you do that?"

Comprehension Questions:

_____ 1. What did James say was magic about the paper cup?

Answer: It would not fall when he let go of it.

_____ 2. What happened when he let go?

Answer: The cup fell.

_____ 3. Do you think Ginger was interested in the magic tricks? Why?

Answer: Paper cups get soggy when you let water stay in them.

_____ 4. How do you think James made the cup stay in his hand?

Answer: He used magic.

Scoring Key

Exercise 19

_C_ 1.

_X_ 2.

_X_ 3.

_C_ 4.

Instructions. If you scored any of the answers incorrectly, go back and reread the analysis principles on page 78 then re-evaluate your scoring. When your answers correspond to those of the scoring key, proceed to the next page.

Scoring Rules

1. Count the number of questions correctly answered.

2. Obtain the percent of comprehension by dividing the number correct by the total number of questions, i.e.,

$$\frac{\#\ \text{correct}}{\text{total}\ \#\ \text{questions}}$$

Instructions. Turn to Exercise 20, Computing Comprehension Scores. Do not turn back to the scoring rules unless absolutely necessary.

Exercise 20

Computing Comprehension Scores

Please complete the following problems:

1. To determine the percent of a child's comprehension it is necessary to divide the (a) ________________ by the (b) ____________________.

2. Tom answered five of the six questions correctly. What was his comprehension score? ________________

3. Helen answered three of the four questions correctly. What was her comprehension score? ___________________

4. If Jerry missed two of the eight questions, what was his percent of comprehension? _______________

Instructions. Compare your answers to the scoring key on the following page.

Scoring Key

Exercise 20

Computing Comprehension Scores

1. (a) # correct
   (b) total # of questions

$$\frac{\text{\# correct}}{\text{total \# questions}}$$

2. 83%

3. 75%

4. 75%

Instructions. If you could answer #1, you should have gotten 2, 3 and 4 correct unless you made computation errors. If you did not answer #1 correctly, please go back and reread the scoring rules for Component B, Analyzing the Comprehension Questions. When you are ready, proceed to the Criterion Exercise 21 on the following page.

Criterion Exercise 21

Instructions. Score the following comprehension questions by putting a "C" in front of the correct answers and an "X" in front of the wrong answers. Then compute the child's percent of comprehension.

Source: "Let's Play" (Book D) Scott-Foresman Reading Systems, Scott-Foresman Company, Glenview, Illinois 60025, 1971.

Text: p. 14 Let's Play hide and go seek. I'm It. Everybody hide.

p. 15 1,2,3,4,5,6,7...William counted. Everybody ran to hide.

p. 16 Peggy ran to the front porch. Barbara ran behind the wall.

p. 17 David ran up on the porch. Neal ran under the porch.

Comprehension Questions:

_____ 1. What was the name of the game the boys and girls played?

Answer: They're playing "tag".

_____ 2. What did everyone do while William counted?

Answer: They ran to hide.

_____ 3. Why do you think William counted from 1 to 7?

Answer: So the children would have time to hide.

_____ 4. Where would you have hidden if you were playing?

Answer: Some place dark so William couldn't find me.

Percent of Comprehension:

____

Scoring Key

Exercise 21

Criterion Test

X 1.

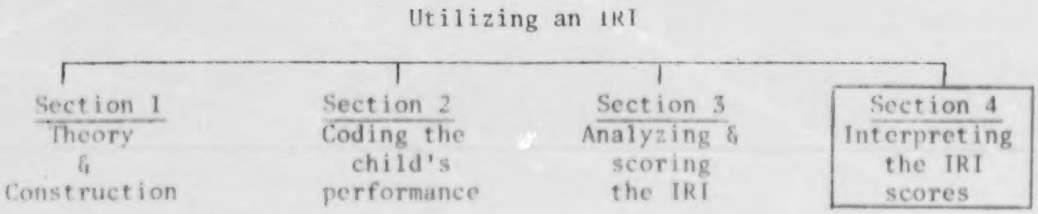
C 2.

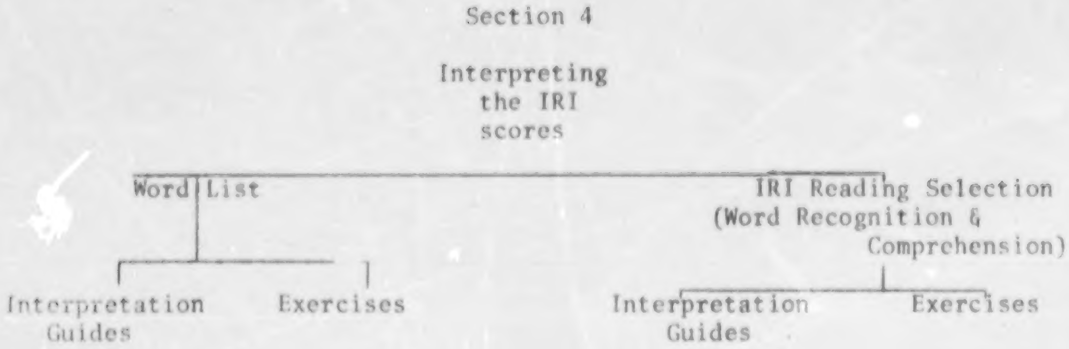
C 3.

C 4.

75%

Instructions. If you made any errors, please re-evaluate your error(s) in light of the analysis and scoring principles. When you know and understand both of these continue to Section 4.


Utilizing an IRI
Section 1
Theory
&
Construction
Section 2
Coding the
child's
performance
Section 3
Analyzing &
scoring
the IRI
Section 4
Interpreting
the IRI
scores


Section 4
Interpreting
the IRI
scores
Word List
IRI Reading Selection
(Word Recognition &
Comprehension)
Interpretation
Guides
Exercises
Interpretation
Guides
Exercises

Section 4

Interpreting the IRI Scores

Introduction

Once you have the child's IRI scores you will need to know how to use them. The intent of Section 4, the culminating section, is to acquaint you with basic interpretation rules and give you practice in applying these rules. Part 1 of Section 4 will be devoted to interpreting the word list scores. Part 2 will be devoted to interpreting the IRI reading selection scores.

Part 1: Interpreting the Word Recognition List Scores

A major purpose of the word list is to help the teacher decide on which level to begin testing the child. Interpreting the scores is a simple process.

Interpretation guides.

1. If the child recognizes 80% of the words, then the level from which the words were sampled will probably be a good level at which to begin testing.
2. If the child scores below 80%, you are reaching his frustration level.
3. If the child scores 85% or above, the level from which the words were sampled should be closer to his independent reading level.

Instructions. Memorize the three Interpretation guides and apply them when working on Exercise 22.

Exercise 22

Interpreting the Word List Scores

Please complete the following exercises. You may refer to the rules on the preceding page if necessary.

I. Word list grade level: Second Preprimer

all ✓
comes ✓
hi ✓
who

a ✓
truck
~~says $sa~~ says Ⓒ
her ✓

have ✓
lunchroom ✓
I ✓
~~books~~ look

fire ✓
trucks
~~away $a~~ away Ⓒ
high ✓

1. Number correct 12
Total words 16
2. % correct 75%

3. Would this be a good level to begin testing to find the child's instructional reading level? ______
4. If not, should the child be tested at a higher or lower level? ______

II. Word list grade level: First Preprimer

the ✓
~~Bing $B~~ Bing Ⓒ
and ✓

~~after~~ $apter
away ✓
~~big~~ dig

bee ✓
lost ✓
hop ✓

~~pond $pon~~ pond Ⓒ
up ✓
Sandy ✓

5. Number correct 10
Total words 12
6. % correct 83%

7. Would this be a good level to begin testing to find the child's instructional reading level? ______
8. If not, should the child be tested at a higher or lower level? ______

III. Word list grade level: Second Preprimer

to ✓
then ✓
not ✓
Jan ✓

hat ✓
got ✓
at ✓
wet ✓

happy ✓
but ✓
is ✓
for ✓

jumped ✓
on ✓
still ✓
~~shadow~~ $sha

9. Number correct 15
Total words 16
10. % correct 94%

11. Would this be a good reading level to begin testing to find the instructional reading level? ______
12. If not, should the child be tested at a higher or lower level? ______

Key

Exercise 22

Interpreting the Word List Scores

3. no

4. lower

7. yes

8.

11. no

12. higher

Instructions. If you made interpretive errors, refer to the rules on interpreting scores. When you are satisfied that your errors, if any, are corrected, proceed to Exercise 23 on the following page.

Criterion Exercise 23

Interpreting the Word List Scores

Utilizing the score the child obtained on the word recognition list, decide whether to begin testing at the level from which the word list was taken to determine the child's instructional reading level. If you decide you would not begin testing at that level, indicate whether you think testing should begin on a level which is easier or more difficult than the level of the word list. Answer question "a" with either yes or no. If your answer is no, then go on to answer "b". If your answer is yes, then leave question "b" blank.

1. Tom recognized 50% of the words contained on the level 4 word list.

   a. Would you begin testing on level 4? ________
   b. Should he be tested at an easier or more difficult level? ________

2. Sue recognized 75% of the words contained on the level 3 word list.

   a. Would you begin testing on level 3? ________
   b. Should she be tested at an easier or more difficult level? ________

3. Brian recognized 87% of the words on the level 2 word list.

   a. Would you begin testing on level 2? ________
   b. Should he be tested at an easier or more difficult level? ________

4. Ted recognized 80% of the words on the level 2 word list.

   a. Would you begin testing on level 2? ________
   b. Should he be tested at an easier or more difficult level? ________

5. Carol recognized 79% of the words on the level 4 word list.

   a. Would you begin testing on level 4? ________
   b. Should she be tested at an easier or more difficult level? ________

Instructions. When you have completed Exercise 23, check your answers against the scoring key on the next page.

Key

Criterion Exercise 23

Interpreting the Word List Scores

Compare your answers with the answers on this sheet. Reason through any discrepancies.

1. a. no
   b. easier

2. a. no
   b. easier

3. a. no
   b. higher

4. a. yes
   b.

5. a. yes Note: 79%, although less than 80%, is certainly close enough to consider testing at that level. If one word makes the difference between whether a child scores 75% or 80% recognition on the word list, then the teacher will need to use his or her own judgment on whether to begin testing at that level (i.e., 12 ÷ 16 = 75%; 13 ÷ 16 = 80%). With longer word lists it is less likely that one error will cause such a major change in the percentage score.
   b.

Instructions. When you have successfully completed (one or less errors) Exercise 23, turn to the next page and Part 2: Interpreting the IRI Reading Selection Scores.

If you had two or more errors, go back and memorize the Interpretation rules on page 86, then retake the criterion exercise.

Part 2: Interpreting the IRI Reading Selection

Scores:

The oral reading word recognition score and the reading comprehension score jointly contribute to determining the child's functional reading levels. It is not possible to judge adequately the child's functional reading levels without considering both scores.

Although the criteria for determining all four functional reading levels will be introduced, major attention will be given to determining the instructional reading level since a knowledge of this level is essential to teaching.

Criteria for determining the functional reading levels.

Functional Reading Level	Oral Reading Word Recognition	Comprehension
Independent	99%	90% or better
Instructional	95%	75% or better
Frustration	under 90%	under 50%
(Note: At the frustration level the child also exhibits signs of stress and tension.)		
Capacity	Teacher reads the selection as it is too difficult for the child.	75% or better

Instructions. Memorize the functional reading level criteria then turn to Exercise 24 on the next page and apply the functional reading level criteria to the problems in that exercise.

Exercise 24

Determining the Functional Reading Levels

Instructions. Study the criteria for determining the functional reading levels before beginning this exercise. After you begin, try not to look back.

1. If a child scores 99% on oral reading word recognition and 25% on comprehension, is that child reading effectively? ____________________

(Note: Base your answer to #1 on the following definition:

Reading is a process of interpreting symbols and extracting an understanding of the meaning those symbols are intended to convey.)

2. If a child scores 95% on oral reading word recognition and 80% on comprehension, at what functional level is he reading? ____________________

____

3. If the child is reading independently at the second grade level, would his instructional reading level be more likely to be the first or third grade? ____

4. If the child squirms in his/her chair, appears to be very nervous, scores 85% on oral reading word recognition and 47% on comprehension, what level would you say he/she has reached? ____________________

____

5. The child is no longer able to read the material so the teacher has begun to read to the child and ask him/her questions about what the teacher is reading. What is the name of the functional reading level the teacher is attempting to measure? ____________________

____

Instructions. Turn the page and score your responses.

Scoring Key

Exercise 24

Determining the Functional Reading Levels

1. No

(Note: Reading implies recognizing words and understanding meaning. In this case the child is excellent at recognizing words, but the comprehension score (25%) indicates that he/she is not understanding the message. Thus, the child is word calling but not actually reading.)

2. Instructional

3. Third

4. Frustration

5. Capacity

Instructions. Review if necessary and then go on to Criterion Exercise 25, Determining the Instructional Reading Level.

Criterion Exercise 25

Determining the Instructional Reading Level

Utilizing the child's IRI scores decides: (a) whether that grade level is the child's instructional reading level and (b) if the grades do not indicate the child's instructional reading level, would it be higher or lower than the grade level tested. In the following questions if your answer to (a) is yes, then leave (b) blank. If your answer to (a) is no, then answer (b).

Instructional level: Word recognition = 95%, comprehension = 75% or better

Frustration level: Word recognition = under 90%, comprehension = under 50%

1. When tested in a fourth-grade text, Leo scored 95% on word recognition and 75% on comprehension.

   a. Is the fourth-grade his instructional reading level? ______

   b. Would you go to the next higher or next lower grade level to determine his/her instructional reading level? ______

2. When tested in a third-grade text, Sue scored 96% on word recognition and 80% on comprehension.

   a. Is the third grade her instructional reading level? ______

   b. Would you go to the next higher or next lower grade level to determine his/her instructional reading level? ______

3. When tested in a second-grade text, Sam scored 85% on word recognition and 48% on comprehension.

   a. Is the second grade his instructional reading level? ______

   b. Would you go to the next higher or next lower level to determine his instructional reading level? ______

4. When tested in a second-grade text, Dennis scored 99% word recognition and 90% comprehension.

a. Is the second grade his instructional level? ______

b. Would his instructional level be above or below the second grade? _______

5. When tested in a third-grade text, Cherry scored 90% on word recognition and under 50% comprehension.

a. Is the third grade her instructional level? ______

b. Would her instructional level be above or below the third grade? ______

Instructions. Proceed to the Scoring Key on the next page and evaluate your responses.

Scoring Key

Exercise 25

Determining the Instructional Reading Level

1. a. yes 2 points
   b. -- 2 points
2. a. yes 2 points
   b. -- 2 points
3. a. no 2 points
   b. lower (below) 2 points
4. a. no 2 points
   b. above (higher, etc.) 2 points
5. a. no 2 points
   b. below (lower) 2 points

Instructions. If you missed five or more points, review the criteria for determining the functional reading levels and retake the criterion exercise. If you missed four or less points, you are to be congratulated. You have successfully completed all 25 exercises and should be ready to take the final examination. If you want to review, do so. When you feel you are prepared, secure the test from the moderator. Good luck!

Supplementary Information File

Section 1

Worksheet

Use this sheet to take notes as you read: Zintz pp. 52-56 and handout #1.

READ TO FIND:

a. Definition and primary purpose of an IRI

b. Advantages of an IRI

c. Major limitations of an IRI

d. The reading levels measured by an IRI and their definitions

e. Source from which an IRI is constructed and the rationale for using this source.

f. Basic components of an IRI

g. Construction of the word recognition list

h. Purpose of the word recognition list

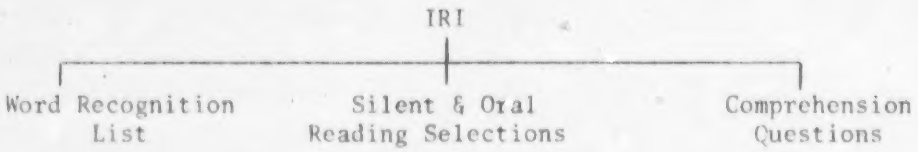
i. Purpose of the oral reading selection

j. Purpose of the comprehension questions

Handout #1

Constructing an Informal Reading Inventory

Purpose: The present handout describes how to construct the following three basic components of an IRI.


IRI
Word Recognition List
Silent & Oral Reading Selections
Comprehension Questions

The handout also suggests special considerations which may be useful if a teacher intends to use the IRI with exceptional children.

Constructing an IRI

I. Choosing the word list to include in an IRI

A. A basic word recognition list should be available for each grade level.

Rationale: The word recognition list, an important component of an IRI, serves a dual purpose. First, a word recognition list is a valuable aid in helping the teacher decide the level at which to begin testing. For example, if the exceptional child makes numerous errors on the word list for a given level, it would probably be unwise to continue testing at that level. Exceptional children have generally had numerous failure experiences. Using the word recognition list wisely can help avoid another. Second, an examination of the types of errors a child makes on a word list can be used in reading diagnosis.

NOTE: There are other options for determining the level on which to begin testing. One method is to refer to the child's school records and find the highest level from which he/she previously read. This procedure assumes he/she was properly placed in the past. Another method is for you to use your own judgment based on information gained in informal oral reading situations. While these means are acceptable, neither offers the diagnostic information a word list may offer.

B. Two alternate means for obtaining the word recognition lists are:

1. Construct a word recognition list of approximately 20 words for each reading level. The words may be obtained from the word list in back of the basal tests. The following technique may be used to choose the words to include in the list:

a. Divide the entire number of words in the word list by 20;

b. Use the quotient from "a" as the interval for choosing the words. Thus if a list contains 100 words, you would choose every fifth word (20/100) to include in the word recognition list.

2. Secure a commercially prepared basic word recognition list such as the Dolch word recognition list.

II. Choosing the selections to include in an IRI

A. The selection to be included in the IRI should be taken from the books: (1) appropriate for use with exceptional children and (2) in which the child will be expected to receive instruction.

Rationale: Although all Basal Reading Series follow a developmental reading approach in which new words, concepts and phonetic rules are introduced on a continuum which becomes gradually more difficult, there is no guarantee that the 3_1 reader in one series corresponds perfectly with the 3_1 reader in another series. The levels of difficulty between various series may be approximately the same, but the introduction of specific vocabulary, concepts, and phonetic rules may follow a differing order from series to series. Thus, to test a child in the 3_1 level of series A does not guarantee that he will be able to perform at the 3_1 level in series B, where the 3_1 level may be somewhat easier or more difficult. (The 3_1 level was chosen as a random example; the same holds true across levels.) Similarly, if a teacher wishes to determine what level health book a child should be using, it would be wise to take the IRI sample paragraphs from the health books being considered for use in class.

B. A relatively complete IRI should have sample selections from all reading levels ranging from preprimer to eighth or ninth grade.

Rationale: Most special classrooms can be expected to have children whose reading levels and abilities vary broadly. It is not unusual for the reading abilities in any given class to have a range of four or more grade levels. For example, in an intermediate class for special students, Susie may be reading at the primer level and Marty may be reading at the fourth-grade level. To adequately test all the children in a class, it is thus necessary to have sample reading selections for a broad range of reading levels. Although it is less likely that a teacher working with EMR children will find many children reading at the upper grade levels, it is still a possibility that some children will be more proficient readers or will at least be able to comprehend at the higher levels. Thus, when constructing an IRI for special children it is as necessary to sample a broad range of reading levels as it is when constructing an IRI for non-retarded children.

C. Sample two selections from each book.

1. One selection is for oral reading and one is for silent reading. The selections should be taken from the beginning 1/3 to 1/2 of the book. They should not, however, be taken from the beginning few stories.

Rationale: In most basal reading series the first few stories are primarily a review of the level which has come before and thus would not adequately sample the pupil's ability to perform at the stated level of the book in which he is being tested.

NOTE: The rationale behind using a silent as well as an oral reading selection is as follows. The oral selection affords a picture of the exceptional child's reading skills and an idea of his/her ability to comprehend what is read. The silent reading passage offers the exceptional child a chance to be more at ease while reading and thus yields a truer picture of his/her comprehension skills and ability to interpret meaning.

2. Both selections may be taken from one story. It is often easier if the selections follow each other consecutively in the test, though it is not a necessity. This is left to the discretion of the teacher.

D. Selections should be from 100 to 200 or more words in length. It is generally not possible to obtain as long a reading selection from the lower levels as from the higher levels.

Rationale: The selection should be long enough to allow the teacher to obtain an adequate picture of the student's reading ability and the types of errors he/she makes. Somewhat longer passages enable the teacher to obtain a more reliable sample of the child's ability. However, while it is necessary to obtain as consistent a picture of the child's reading as possible, tiring the child should be avoided. Be particularly careful with exceptional children since many have short attention spans. If necessary, use more than one sitting when testing such a child to avoid fatigue or boredom.

III. Composing comprehension questions for the IRI selections

A. A set of comprehension questions should be composed for each selection.

Rationale: Reading is the process of interpreting symbols and extricating an understanding of the meaning those symbols are intended to convey. For this reason, a test of reading is not complete unless it samples both the child's ability to interpret the written symbols and his/her ability to extract meaning from what has been read.

B. Two types of questions should be composed for each selection.

1. Lower level questions which require the exceptional child to recall and relate something he or she has received direct information about from the reading, i.e., Who won the game? What was Tom's problem?

2. Upper level questions which ask the exceptional child, based on information gained from reading, to:

a. Make inference, i.e., How do you think Tom's team will do in the next game? (In the story, two of the key players on Tom's team have been injured.)

b. Make value judgments. Do you think Tom is a good player? Why?

c. Solve problems, i.e., What can Tom's team do to win the next game?

C. It is possible to compose more questions for some selections than for others. Notably, it is harder to compose numerous questions for selections from the beginning reading tests. If a selection does not lend itself to many questions, do not be forced into composing irrelevant questions.

IV. Physical format of an IRI

A. Only one children's copy of each selection will be necessary since the children are not expected to mark the selection in any way. Their task is to read the selection or selections chosen; thus, the children's copy may be reused as often as necessary.

1. It is desirable to allow the child to read the selection directly from the original source (book) since this procedure allows the child to experience the actual physical format of the material in which he will be receiving instruction (i.e., print size, pictures, amount of print per line, etc.).

2. If the child is older and reading at a lower level, as is the case with many educable mentally retarded (EMR) children, it may be socially or psychologically unwise to ask him/her to read from a book which has a childish appearance. In this case, have the selection typed on a separate sheet of paper. The reproduced selection should follow the physical format of the book as closely as possible. The print should be as similar as possible to the print used in the book, i.e., do not use a script typewriter. The lines should be the same length as the lines in the textbook. If the text uses columns, the reproduction should use the same columns. If the selection in the text carries onto a second page, the reproduction should do the same. The purpose is to maintain as close a resemblance to the actual format as possible.

B. The teacher must have numerous copies of all selections, since, as the child reads a selection, the teacher must follow along on his/her copy of the selection and mark any oral reading errors which the child makes. The teacher must thus have as many copies of a given selection as he/she has children who read that selection.

Note: The teacher puts the name of the child who is reading on the teacher's copy of the selection which is being marked so the selection may be referred to at a later time for analyzing reading errors.

Format for the teacher's copy:

1. The teacher's copy of the IRI selection should contain:
    a. the complete bibliography on the book from which the IRI selection was chosen;
    b. a short introduction to the selection;
    c. the IRI selection;
    d. the comprehension questions;
    e. the word list (if a commercial list is used, it may be on a separate sheet of paper).
2. The reproduced selections should follow the physical format of the book as closely as possible.
3. Each selection should be typed on a separate sheet (or sheets, depending on the length of selection) of paper.

See the Sample IRI which follows this Handout #1.

Instructions. When you have finished the readings for Section 1 (Zintz, pp. 52-56 and Handout #1), review your notes. Then turn back to p. 9 of this module and begin the Criterion Test for Section 1.

Sample IRI

Instructions

During the administration of the Informal Reading Inventory, the ideal situation is to allow the child to read from the original text. Note: With exceptional children this may at times present a problem. Often older educable mentally handicapped and slow learning children are reading at a very low level and the books which they are capable of reading are very childish in appearance. In such cases, to avoid embarrassing the exceptional child the teacher may wish to have the script from the text transcribed onto a plain sheet of paper. (see Handout #1).

Before beginning the IRI the child is provided with a purpose for reading, and the text remains at his/her disposal at all times.

Of the four comprehension questions, the first two are factual and the second two are inferential. Any reasonable answer should be accepted for the latter.

The instructional level is the highest level at which the child reads with 95% word recognition and 75% comprehension. The number of errors which can be made while maintaining 95% word recognition (or more) is indicated under "Word Recognition" following each passage.

Administration

A. Put the pupil as much at ease as possible.

Rationale: The special child is very likely to be overly anxious about any testing situation and as a result of this anxiety he may make reading errors which he would not ordinarily make. Thus an accurate picture of his reading ability will not be obtained. A teacher must be aware of this factor. The IRI is a diagnostic test. If a teacher feels it is warranted, he/she may even wish to test a very anxious child several times to insure some rapport and a better sampling of the child's reading ability.

B. Telling the child exactly what is going to happen will help to allay his anxiety. First the child should be told what he/she will be expected to do; second, what the teacher will be doing; and third, the purpose for the reading.

C. The entire reading experience should be as complete a unit as possible. For that reason, if a selection is from the beginning of the story, you should tell or read the rest of the story to the pupil. If the selection is from the middle or end of the story, you should relate the story up to that point before asking the student to read.

D. It may be very helpful to tape record the pupil's performance.

Rationale: Even experienced diagnosticians, when listening to a tape recording of a testing session, will find they have made some errors in scoring. Relistening to a tape may also offer the teacher the chance to analyze further a child's errors or miscues.

Test for Level 2

Source: Let's Play (Book D)

Silent Reading Evaluation

Purpose: This is the story of some boys and girls who decide to play a game. Read to find out what they play and how they play it.

Test: p. 14 Let's play hide-and-go-seek. I'm It. Everybody hide.

p. 15 1,2,3,4,5,6,7... William counted. Everybody ran to hide.

p. 16 Peggy ran to the front porch. Barbara ran behind the wall.

p. 17 David ran up on the porch. Neal ran under the porch.

Comprehension Questions

1. What was the name of the game the boys and girls played? (hide-and-go-seek)

2. What did everyone do while William counted? (They ran to hide)

3. Why do you think William counted from one to seven?

4. Do you think the children were happy to play? Why?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 2)

Purpose: Now the story tells about what happens after the children hide. Read to find out what happens.

Text: p. 18 Soon William looked behind the wall. He saw Barbara. William and Barbara ran to the tree. Barbara was the first to get there.

p. 19 William saw David on the porch. He saw Neal under the porch. The boys ran to the tree. Neal and David were the first to get there.

Comprehension Questions

1. When William and Barbara ran to the tree, who got there first? (Barbara)
2. Where did Neal and David run when William saw them? (to the tree)
3. Who do you think can run faster, William or Barbara? Why?
4. Who will have to be "it" next time? Why?

Comprehension Success: _____% correct

_____factual errors
_____inferential errors

Word Recognition Success: _____% correct

	Miscues		
	Reader	Text	Errors
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Test for Level 3

Source: Abracadabra (Book D)

Silent Reading Evaluation

Purpose: This is a story about a boy named James who likes to do magic tricks. Read to find out what trick he is going to do for Ginger.

Text: p. 2 James was doing magic tricks for Ginger. He said, "See this paper cup. I'll say a magic word. Then I'll let go of the cup. But it won't fall."

p. 3 James said "Abracadabra!" He let go of the cup. It didn't fall! Ginger asked, "How did you do that?"

Comprehension Questions

1. What did James say was magic about the paper cup? (It would not fall when he let go of it)

2. What happened when he let go? (It didn't fall; it stayed in his hand)

3. Do you think Ginger was interested in the magic tricks? Why?

4. Why do you think James said "Abracadabra?"

Comprehension Success: _____% correct

_____factual errors
_____inferential errors

Oral Reading Evaluation (Level 3)

Purpose: James is going to show Ginger how to do the trick. Read how he does it and what the next trick is.

Text: p. 4 James showed Ginger how to do the trick. He put a tack in the side of the paper cup. He put the tack between two fingers.

p. 5 Then James gave Ginger a box of crayons. He said, "I'll put my hands behind my back. You put a crayon in my hands. I'll tell you what color the crayon is." Ginger put an orange crayon in his hands.

Comprehension Questions

1. What did James do to make the cup stay in his hand? (he put a tack in the cup; he put the tack that was in the cup in his fingers)
2. What did James ask Ginger to put in his hand? (a crayon)
3. Do you think Ginger could have picked any color crayon she wanted? Why?
4. Do you think he will guess the color by real magic? Why or why not?

Comprehension Success: _____% correct

_____factual errors
_____inferential errors

Word Recognition Success: _____% correct

Miscues

Reader	Text	Errors
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

Test for Level 4

Source: The Little Knight (Book D)

Silent Reading Evaluation

Purpose: This is the story of a dragon who roared so loud that he kept the king and queen awake. Read to find out what the king decided to do about the dragon.

Text: p. 8 One day the king sent for his knights. There were four big knights and one little knight.

The king was mad. "I can't get any sleep," he said. "Do something about that dragon!"

p. 9 "What should we do?" asked one of the big knights.

"I don't care what you do!" said the king. "But do it fast!"

p.10 So the knights left the castle to do something about the dragon.

p.11 They started to go up the hill to the dragon's cave.

Comprehension Questions

1. Who did the king send for? (the knights)

2. Where did the knights go? (up the hill to the dragon's cave)

3. Look at the picture on page 11. Why do you think that the little knight is walking behind the others?

4. How do you think the knights felt as they climbed the hill to find the dragon who roared so loud?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 4)

Purpose: The little knight is going to be surprised at what he sees. Read to find out what he sees and what the dragon says.

Text: p. 12 Just then the dragon roared. The big knights turned

p. 13 and ran. But the little knight kept on going. He was a brave little knight who wasn't afraid of any old dragon. He kept on going up the hill until he got to the dragon's cave.

p. 14 The little knight tiptoed into the cave. He saw the dragon. The dragon was crying. The knight asked, "Why are you crying?"

p. 15 "I'm crying because everybody is afraid of me," said the dragon. "No one comes to see me. I don't have any friends."

The little knight said, "I came to see you. I'll be your friend."

Comprehension Questions

1. Why didn't the little knight run when the dragon roared? (he wasn't afraid; he was brave)

2. Why was the dragon crying? (He had no friends; everyone was afraid of him)

3. Why did the other knights run when the dragon roared?

4. Do you think the little knight will make the dragon happy? Why or why not?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Level 4 (continued)

Word Recognition Success: _____% correct

	Miscues		
	Reader	Text	Errors
1.			
2.			
3.			
4.			
5.			
6			
7.			
8.			
9.			
10.			
11.			
12.			

Test for Level 5

Source: The Big-City Book (Book D) "Grown-ups Are Funny"

Silent Reading Evaluation

Purpose: Ramon thought grown-ups were funny because his mother and father wanted to move from his grandfather's house to an apartment. Read to find out how he said good-bye and about his new home.

Text: p. 8 Soon they did move--Ramon and his mother and his Aunt Rosa. It was a sad day for Ramon. When he said good-bye to grandfather's cat, Big Pedro, he wanted to cry. Ramon put his arms around the cat and said, "Good-bye, Big Pedro. I love you." Big Pedro said, "Mew," and rubbed against Ramon.

p. 9 The day they moved was a day of surprises too. The apartment house had four floors. Ramon's apartment was 2A. "I can find that," thought Ramon. "All I do is go to floor Two and look for 2A."

Comprehension Questions

1. How did Ramon feel the day he moved? (sad, unhappy, etc.)

2. How did Ramon say that he would find apartment 2A? (go to floor 2 and look for 2A)

3. Was Ramon sorry to say good-bye to Big Pedro? How do you know?

4. Do you think Ramon will like living in the apartment? Why or why not?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 5)

Purpose: Ramon finds a good surprise. Read to find out what it is.

Text: p. 11 The best surprise was the children--lots of children.
Girls and boys! Soon Ramon got to know them.
Jimmy lived on the top floor in apartment 4B.
Leon lived in apartment 3B
Johnny and his sister, Lola, lived right next door
to Ramon. And the twins, Sara and Sammy, lived right
under Ramon in apartment 1A.
There was always someone to play with. Every day
Ramon ran up to the top floor and called for Jimmy.
Then Jimmy and Ramon ran downstairs to call for Leon.
Then Leon and Jimmy and Ramon ran downstairs to call
for Jimmy and Lola.
They all went downstairs to call for the twins.
And then they ran out to play.

Comprehension Questions

1. What was the best surprise for Ramon? (children to play with)

2. What did Ramon do every day? (he ran to the top floor and called for Jimmy, he ran out with his friends to play)

3. Do you think Ramon liked his apartment building? Why or why not?

4. Do you think Ramon was a friendly person? Why?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Level 5 (continued)

Word Recognition Success: ______%

	Miscues		
	Reader	Text	Errors
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			

Test for Level 6

Source: "Ah See and the Spooky House" (Book C)

Silent Reading Evaluation

Purpose: This is the story of some boys who live in Hawaii--Keoki, Antone, Saburo, and Elmer. They are going to investigate strange noises that are coming from an empty, spooky house on the pali trail. Read to find out what happens.

Text: p. 13 Keoki led the way up the pali trail to the house at the top. It still looked empty. It still looked spooky. It still had a high fence around it, and the gate was shut.

"I don't see anything," said Antone.

"I don't hear anything," said Saburo.

"But there could be something," said Keoki.

"There's a hole in the fence," said Elmer. "Help me climb up, and I'll look."

p. 14 Keoki stood under the hole in the fence. Elmer climbed on top of him. He could just see into the yard. There was something there! It was looking right at him! "What do you see?" called Saburo.

Comprehension Questions

1. What did the boys see and hear when they arrived at the house? (fence and house, they heard nothing)

2. Who looked into the yard? (Elmer)

3. How do you think Elmer felt when the "thing" looked right at him?

4. Do you think the owner of the house wanted people snooping around the house? Why?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 6)

Purpose: Elmer saw something in the yard. Read to find out what it was.

Text: p. 15 Elmer gave a yelp and jumped down. "Two yellow eyes!" he cried. "Big, wild eyes!"

"I don't believe it," said Saburo. "Let me look."

p. 16 Saburo climbed on top of Elmer. "What do you see?" called Antone. Saburo gave a yelp and jumped down "A long green head!" he cried. "An ugly head!" "I don't believe it," said Antone. "Let me look." He climbed on top of Saburo. "What do you see?" called Keoki. Antone gave a yelp and jumped down. "A big, hungry mouth!" he cried. "With sharp teeth and a forked tongue!" "That's silly," said Keoki. "Let me look." He climbed on top of Antone. "Tell us what you see," called Elmer. Keoki gave a yelp and jumped down. "A dragon!" he cried. "A big, wicked dragon! Run!"

Comprehension Questions

1. What kind of eyes did Elmer say it had? (yellow, big, wild)
2. What did Keoki say it was? (a dragon)
3. Do you think the boys were scared? Why?
4. What do you think they saw?

Level 6 (continued)

Comprehension Success: ______% correct

______factual errors
______inferential errors

Word Recognition Success: _____% correct

Miscues

	Reader	Text	Errors
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			

Test for Level 7

Source: "Boomerang" (pp. 65-74 of Level 7)

Silent Reading Evaluation

Purpose: This story is about a girl named Marcia Manning. One afternoon her father brings something home. Read to find out what it is and what they do with it.

Text: p. 65 A New Bird Feeder

Late one afternoon Mr. Manning came home carrying a long, thin box. "Daddy, what did you buy--a lamppost?" Marcia Manning asked curiously?

"I brought something much nicer." her father answered. "I brought a bird feeder for our yard."

p. 66 Mr. Manning and Marcia went outside and put up the bird feeder. Mr. Manning pushed the long pole of the feeder into the ground. Marcia stood on an old chair so that she could put birdseed into the feeding tray. When Marcia and Mr. Manning went in, dinner was ready. While they were eating, Marcia kept looking out the window at the bird feeder. All of a sudden Marcia cried, "Look!"

Comprehension Questions

1. What did Marcia's father bring home? (a bird feeder)
2. What did Marcia put in the feeder? (birdseed)
3. Do you think a bird feeder could cause any problems? Why or why not?
4. Do you think Marcia was interested in the bird feeder? Why or why not?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 7)

Purpose: Something was at the bird feeder. Read to learn what it was and what it did.

Text: p. 67 A Bird Feeder is Not for Squirrels

They all looked out of the window and saw a squirrel run right up the pole of the feeder. He scrambled onto the feeding tray and started to eat the birdseed. Mr. Manning went outside and shouted at the squirrel. The squirrel zipped down the pole and up the trunk of the big oak tree. "I guess I frightened him," Mr. Manning said.

p. 68 When Mr. Manning got back in the house he said, "That bird feeder was supposed to be squirrel proof." Mrs. Manning said, "I don't think the squirrel knows it's squirrel proof. He's coming back now and he still looks hungry." The squirrel ran up the pole again. He began eating birdseed as happily as ever. Mr. Manning frowned. "The birds won't use our feeder if that squirrel keeps coming around." He tapped on the window with a spoon, and the squirrel ran back to the oak tree.

Comprehension Questions

1. What was the squirrel doing? (eating the birdseed)

2. Why did Mr. Manning think that the birds wouldn't use the feeder? (the squirrel was there)

3. Do you think the squirrel was afraid of people? Why?

4. What do you think Mr. Manning could do to keep the squirrel from using the feeder?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Word Recognition Success: ______% correct

Miscues Reader	Text	Error
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Test for Level 8

Source: "Henry" (pp. 66-85 of Level 8)

Silent Reading Evaluation

Purpose: This is the story of Judy and something she received from her aunt. Read to find out what she sent and what Judy decided to do with it.

Text: p. 66 Henry

It was Judy's birthday. She got many cards. One card was very heavy. It had ten dimes on it. The card said, "Buy something you want. With love, Aunt Ann." Judy didn't know what to buy. "You can buy a red hat," said Mother. "A game is more fun," said Mike. Judy didn't want a hat. She didn't want a game.

"I think I'll go down to Joe's Pet Shop," said Judy.

"Not another pet!" said father.

Comprehension Questions

1. What did Aunt Ann send on the card she sent to Judy? (ten dimes, money)
2. What did mother suggest she buy? (a red hat)
3. Do you think Judy will have enough money to buy a pet?
4. How do you think Judy's father felt about Judy going to the pet store?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Oral Reading Evaluation (Level 8)

Purpose: Now the story tells what Judy brought home from the pet shop. Read to find out what she bought.

Text: p. 68 Judy went down to see Joe in the pet shop. When Judy came home, she had a box in her hand. In the box was a small ball of white fur. It was a little white mouse!

"What's your mouse's name?" asked Mother.

"Henry is his name," said Judy.

"That box is too little for Henry," Mike said.

"He wants more room to run around," said Mother.

Comprehension Questions

1. What did Judy bring the mouse home in? (a box)
2. What did Judy name the mouse? (Henry)
3. Do you think Judy will leave him in the box? Why or why not?
4. How do you think Mother felt about the pet?

Comprehension Success: ______% correct

______factual errors
______inferential errors

Word Recognition Success: ______% correct

Miscues

	Reader	Text	Errors
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

SUMMARY

Name ______________________________ Age ____________

Reading Level Summary

Selection		% Word Recognition	% Comprehension
Level 1	Silent		
	Oral		
Level 2	Silent		
	Oral		
Level 3	Silent		
	Oral		
Level 4	Silent		
	Oral		
Level 5	Silent		
	Oral		
Level 6	Silent		
	Oral		
Level 7	Silent		
	Oral		
Level 8	Silent		
	Oral		

Independent Reading Level (100% comprehension, 99% word recognition):

____

Instructional Reading Level (75% or better comprehension, 95% word recognition):

____

Comment:

Summary of Miscues

Total Miscues:

	reader	text
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
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18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		
31.		
32.		
33.		
34.		
35.		

Comments:

ease of reading-

pointing and vocalizing-

attention to punctuation-

self-corrections-

rhythm and phrasing-

use of context (note grammatic and semantic acceptability and meaning change)-

reoccurring structural, phonetic, and grammatical errors-

dialect-

other-

Summary of Comprehension

	Silent	Oral
factual errors		
inferential errors		

Comments (use of pictures, aided or unaided recall, etc.):

Affect:

reactions to reading situation-

independence or reliance on teacher when reading-

interests of child-

related background information

Other:

APPENDIX D

Achievement Test With Scoring Rules and Answer Key
(pp. 299-314)

I have completed the module ____________ Name ____________

I have not completed the module ____________ Date ____________

Class ____________

Test
Coding an IRI

Coding a word list:
Inst: In a few minutes you will be asked to code a child's performance as he reads a word list. The symbols you are to use when coding the child's performance are contained in the box below--please review them at this time.

SYMBOLS

1. circle words omitted = i.e., Tom went home.

2. put a slash through words misread and write the word the child substituted above the original word =
so
i.e., ~~soon~~

3. if the child's attempt at the original word is not a recognizable word, use the "sounds alike" ($) symbol to identify the attempt =
$s
i.e., ~~soon~~

4. put a check after each word the child correctly identifies i.e., boy ✓

5. use a small "c" in a "circle" to indicate an accurate correction of an earlier misreading.
soon ©
$s
i.e., ~~soon~~

1. Word list I (31 words) please mark your coding on the list below.

a ✓
airplane
an ✓
and ✓
apple
are
at ✓
away
baby
ball ✓

be ✓
bed ✓
big ✓
~~birthday~~ $b ($ba) bir
blue
~~boat~~ $bo boat ©
bow-wow
take
call
can ✓

cap ✓
car ✓
Christmas ✓
come ✓
cookies ✓
cookies ✓
cowboy
~~daddy~~ baby
did ✓
dinner
dish

2. Assume that the word list you just heard Raja read is a 4th-grade word list. Your task, based on his performance, is to choose the best estimate of the grade level on which you would begin testing to determine Raja's instructional reading level.

___ a) The 4th grade
___ b) The 5th grade
_✓_ c) The 3rd grade
___ d) I don't know

Coding an oral reading passage:
Inst: In a few minutes you will be asked to code a child's performance as he reads an oral reading passage. The symbols you are to use when coding the child's performance are contained in the box below--please review them at this time.

SYMBOLS

1. The caret (∧) means a word was inserted: write the inserted word above the caret.
not
He was∧happy.

2. Circle word(s) omitted. i.e., Tom went home

3. Draw two lines under words which are repeated.
i.e., Tom went home.

4. Put a slash through words misread and write the word the child substitutes above the original word. i.e.,
so
~~seen~~

5. If the child's attempt at the original word is not a recognizable word, use the "sounds like" ($) symbol to identify the attempt.
$s
i.e., ~~seen~~

6. Use a small "c" in a "circle" to indicate an accurate correction of an earlier misreading.
soon ⓒ
$s
i.e., ~~seen~~

3. Test for Grade 3 (49 words) please mark your codes on the passage below.

magic © $Gisger
$ma $Gi
Text: Page 2 James was doing ~~magic~~ tricks for ~~Ginger~~. He said,

paper ©
$pa magic ©
$pa $ma
"See this ~~paper~~ cup. I'll say a ~~magic~~ word. Then

I'll let go of the cup. But it won't fall down."

Page 3 James said "Abracadabra!" He let go of the cup.

It didn't fall!

$Gisger
~~Ginger~~ asked, "How did you do that?"

4. Based on the child's oral reading performance on what functional reading level is this child performing?

______a) Capacity
______b) Frustration
______c) Independent
__✓__d) Instructional
______e) I don't know

5. Given the child's performance in number 3 and the additional information that he correctly answered three out of four comprehension questions about the reading passage what is his functional reading level?

______a) Capacity
______b) Frustration
______c) Independent
__✓__d) Instructional
______e) I don't know

Scoring Rules

1. Each correct code receives 1 point.

2. An incorrect code receives 0 points.

3. Regarding "sounds like" ($) codes and substitutions: If the individual recognizes that a miscue was made and notes this, but what he heard differs from the "sounds like" code on the scoring key, give the individual credit. The important point is that the individual noted there was a miscue and attempted to record it. Due to the quality of the tape and the group coding situation under which the test was administered, it was not always possible to hear exactly what the child attempted or substituted.

4. If a code has more than one element, give a fractional point for each element correctly marked. Sum the fractional points for the code. If the sum is ½ or more, give a full point (1) for the code; if the sum is less than ½, give zero points (0) for the code. See below.

examples: **birthday** **$b** $bir = 5/5 or 1 point

birthday $bir = 3/5 or 1 point

birthday $b = 2/5 or 0 points

NOTE: Paper is coded:

paper ⓒ $pa $pa **paper**	also correct is:	paper ⓒ $pa **paper**

5. If, when coding a miscue, the individual uses both right and wrong codes; count the number of fractional parts coded correctly and subtract the number of fractional parts coded incorrectly. If the final total is more than ½, give 1 point; if less than ½, give 0 points. See below.

examples:	correct code	**paper**	$pa	$pa	paper ⓒ	total = 7/7 or 1 point
	incorrect code	**paper**	$pa	$pa	paper ⓒ	total = 6/7 or 1 point

_____ I have completed the module.

_____ I have not yet completed the module.

Name _______________

Date _______________

Class _______________

Test

Utilizing an Informal Reading Inventory (IRI)

True and False

Instructions: Please place a "T" in front of those statements which are true and an "F" in front of those statements which are false.

T 1. The IRI is a more valid indicator of the instructional reading level of a child than a standardized test.

F 2. The IRI is relatively independent of the teacher administering it.

F 3. The child's capacity reading level is the highest grade level on which a child can read and maintain some understanding.

F 4. There should be a reading skills checklist available for each grade tested.

T 5. A teacher may determine the level on which to begin testing by referring to the child's school records and finding the highest level from which the child previously read.

F 6. It is not wise to choose the IRI selections from the very same texts in which the child will be receiving instruction.

T 7. The teacher uses materials at hand to construct an IRI.

T 8. The silent reading selection may put the child more at ease and offer a truer picture of comprehension skills.

F 9. For best results, the IRI should be administered in one sitting.

T 10. Upper and lower level comprehension questions should be composed for each selection.

T 11. The capacity reading level is an indication of a child's innate ability to read.

F 12. It is important to have the same number of comprehension questions for each reading selection.

T 13. When possible, it is desirable to allow the child to read the IRI selections directly from the original source.

F 14. The IRI's use is not limited to measuring reading performance in standardized reading texts only.

T 15. All reading errors are reading miscues.

F 16. To obtain the percent of words correctly recognized, divide the total number of words by the total number of words correctly recognized:

$$\text{i.e.,} \qquad \frac{\text{total \# words}}{\text{total \# correct}}$$

F 17. All reading miscues are reading errors.

F 18. When determining the child's instructional reading level, the teacher has the option of considering the child's scores from the oral reading selection and from the comprehension questions either separately or in combination.

F 19. The single most important aspect of scoring a child's oral reading performance is the process of computing the percent of words correctly recognized.

T 20. The number of errors a child makes directly affects the level at which the child will be placed for reading.

Matching

Instructions: Please match the operational definitions found in Column 3 with the appropriate functional reading level. You should match a letter from Column 3 with the blanks in Columns 1 and 2. The letters in Column 3 may be used more than once or not at all. You may fill all of the blanks in Columns 1 and 2 or leave any of the blanks empty.

Functional Reading Levels	Oral Reading	Comprehension
Capacity	21. --	25. B
Independent	22. E	26. D or F
Frustration	23. H	27. C
Instructional	24. A	28. B

Operational Definitions

A. 95%
B. 75% or better
C. 50% or under
D. 90% or better
E. 99%
F. 90% or better
G. 100%
H. under 90%

Multiple Choice

Instructions: Place a check (✓) in front of the statement which most accurately answers the question.

29. The basic components of an IRI are:

___ a. a reading skill checklist, a word recognition list, standardized reading selections, and comprehension questions

___ b. a word recognition list, silent and oral reading selections, construction of an experience story, and comprehension questions

___ c. a reading skills section, silent and oral reading selections, and comprehension questions

_✓_ d. a word recognition list, silent and oral reading selections, and comprehension questions

___ e. a reading skills checklist, a word recognition list, silent and oral reading selections, and comprehension questions

30. Which of the following is a major limitation of an IRI?

___ a. the amount of time it takes to construct and administer
___ b. it is not a timed test
_✓_ c. it depends on the competence of the teacher who uses it
___ d. it lacks standardized test norms
___ e. it is not an individualized instrument

31. Which statement most accurately describes a child's reading frustration level?

___ a. level at which a child may exhibit physical signs of tension and has obvious difficulty reading, but understands the ideas and concepts which are read to him/her

___ b. level at which a child reads without help but with obvious difficulty and where instruction is warranted

___ c. level at which the child has difficulty reading but where the material is difficult enough to be challenging so that instruction is appropriate

_✓_ d. level at which the child has obvious difficulty reading and may exhibit signs of physical tension--an inappropriate level for instruction

___ e. level at which the child has difficulty reading and may exhibit some signs of tension but where the child can still read independently

32. Which statement most accurately describes a child's independent reading level?

✓ a. level at which the child reads fluently and with excellent understanding

____ b. level at which the child reads without help, has very good comprehension, and the materials are difficult enough to be challenging

____ c. level of reading competence which the child should be capable of attaining

____ d. a and c

____ e. none of the above are completely accurate

33. Which statement most accurately describes a child's instructional reading level?

____ a. level at which the child has good oral reading skills but limited comprehension (below 50%) making instruction necessary

____ b. level at which the child can read but with obvious difficulty, so instruction is warranted

____ c. materials difficult enough to be challenging, child reads with limited help when exhibiting minor signs of tension (fidgeting)--instruction appropriate

✓ d. level when materials are just difficult enough to be challenging--an appropriate level for instruction

____ e. none of the above are completely accurate

34. When scoring an IRI word list, the number of words correctly recognized is equal to:

____ a. the total number of words the child recognized on his/her first attempt

✓ b. all words correctly recognized regardless of the number of attempts the child makes before the word is correctly identified

____ c. Choice (b) above plus those attempts which the child makes which are very close to the original text (i.e., get $g $git)

____ d. Choice (b) above plus ½ point for those attempts which the child makes which are very close to the original text)

____ e. None of the above are completely correct.

35. The quality of the errors a child makes affects:

____ a. the length of the testing situation

____ b. the level at which the child will be placed

_✓_ c. the emphasis of future instruction

____ d. all of the above

____ e. choices a and b

36. Following are the scores Leo made when given an IRI. Which grade level would be Leo's instructional reading level? Check the appropriate level.

____ a. 2nd-grade test = 99% oral reading word recognition
98% comprehension

____ b. 3rd-grade test = 99% oral reading word recognition
90% comprehension

_✓_ c. 4th-grade test = 95% oral reading word recognition
75% comprehension

____ d. 5th-grade test = 95% oral reading word recognition
70% comprehension

____ e. 6th-grade test = 89% oral reading word recognition
49% comprehension

37. If Larry recognized 99% of the words contained on a 3rd-grade word list, this would probably be a good level on which to continue testing to determine Larry's ________ reading level.

____ a. Instructional

____ b. Capacity

_✓_ c. Independent

____ d. Frustration

____ e. Functional

38. Helen recognized 80% of the words contained on a 2nd-grade word list. This would probably be a good level on which to continue testing to determine Helen's ________ reading level.

_✓_ a. Instructional

____ b. Capacity

____ c. Independent

____ d. Frustration

____ e. Functional

39. Tammy made the following scores on an IRI. At what grade did she first reach her frustration reading level?

___ a. 2nd-grade test = 100% oral reading word recognition
95% comprehension

___ b. 3rd-grade test = 95% oral reading word recognition
75% comprehension

___ c. 4th-grade test = 93% oral reading word recognition
70% comprehension

_✓_ d. 5th-grade test = 88% oral reading word recognition
50% comprehension

___ e. 6th-grade test = 80% oral reading word recognition
50% comprehension

40. Tom made the following scores on an IRI. What is the highest level at which he can read independently?

___ a. 2nd-grade test = 100% oral reading word recognition

_✓_ b. 3rd-grade test = 99% oral reading word recognition
93% comprehension

___ c. 4th-grade test = 95% oral reading word recognition
90% comprehension

___ d. 5th-grade test = 95% oral reading word recognition
88% comprehension

___ e. 6th-grade test = 93% oral reading word recognition
80% comprehension

Instructions. The paragraphs below are part of a test which was given to some children. The markings seen in the paragraphs tell how two children read the paragraphs. Examine the paragraphs, then answer the questions based on the information in the paragraphs.

Below is an example of how the first child performed on the paragraph. Examine her performance and answer questions a and b below. (Text = 27 words)

asleep tiptoed ©
While the lady was ~~sleeping~~ the robber ~~tiptoed~~ into her / apartment
jewels © woke up
and took her ~~jewels~~. When she ~~awakened~~ she saw her empty jewelry box
on the chair.

41. How many reading errors did the child make?

____ (1) 7 errors
____ (2) 5 errors
____ (3) 3 errors
✓ (4) 1 error
____ (5) I am unable to tell.

42. The paragraph above is an example of a child reading at her ____________ reading level.

(1) capacity
✓ (2) instructional
____ (3) frustration
____ (4) independent
____ (5) I am unable to tell.

Below is an example of how a second child performed on the paragraph. Examine his performance and answer questions a and b. (Text = 27 words)

sleeping ©
$s

While the lady was ~~sleeping~~, the robber tiptoed into her apartment
look
and ~~took~~ her jewels. When she awakened she saw her empty jewelry box

on the chair.

43. How many reading errors did the child make?

____ (1) 4 errors
✓ (2) 3 errors
____ (3) 3 1/2 errors
____ (4) 1 error
____ (5) I can't tell.

44. The paragraph above is an example of a child reading at his __________ reading level.

____ (1) capacity
____ (2) instructional
✓ (3) frustration
____ (4) independent
____ (5) I am unable to tell.

Instructions: Place a check (✓) in front of the statement which indicates the correct number of errors found in each example of a child's reading performance.

45. During an oral reading test a child was asked to read the following text:

Tom said he liked to play tag, but Carol said Tom didn't

The child read:

"Ted s.... he like to play tag, but Carol s.... Ted didn't."

____ a. This is counted as 4 errors.
____ b. This is counted as 3 errors. (1 point for the first time a word is missed, and 1/2 point for each additional time a word is missed).
✓ c. This is counted as 3 errors (a proper name is only counted the first time it is missed, but all other words are counted each time they are missed.
____ d. This is counted as 2 errors (a word is only counted as an error the first time it is missed).
____ e. I am unable to tell.

46. During an oral reading test a child was asked to read the following text:

The homes were very old.

The child read:

"The house was very old."

____ a. This is counted as 2 errors (1 error for each word substitution).
____ b. This is counted as 1 1/2 errors [illegible] point for the first substitution and 1/2 point for the second substitution since it was made to retain proper grammatical functioning).
_✓_ c. This is counted as 1 error (only the first error is counted since the second error was made to maintain proper grammatical functioning)
____ d. This is counted as 0 errors (no meaning change was involved).
____ e. I am unable to tell.

47. During an oral reading test a child was asked to read the following text:

The boy never liked to practice his piano.

The child read:

"The boy (long pause) never liked to p prac practice his piano.

_✓_ a. This is counted as 0 errors.
____ b. This is counted as 1 error.
____ c. This is counted as 2 errors.
____ d. This is counted as 3 errors.
____ e. I am unable to tell.

48. During an oral reading test a child was asked to read the following text:

Pretty girls sat on the horses in the parade.

The child read:

"....................on the horses in the pa parade."

____ a. This is counted as 4 errors.
____ b. This is counted as 3 errors.
____ c. This is counted as 1 1/2 errors (1 point for the omitted phrase and 1/2 point for the first attempt at "parade").
_✓_ d. This is counted as 1 error (1 point for the omitted phrase).

49. During an oral reading test the child was asked to read the following text:

That didn't make them happy.

The child read:

"Dat didn't make dem to happy."

____ a. This is counted as 3 errors (1 error for each misreading).
____ b. This is counted as 2 errors (insertions which don't change the meaning are not counted as errors).
____ c. This is counted as 1 error (examples of speech variations or subcultural dialects are not considered errors).
_✓_ d. This is counted as 0 errors (none of the misreadings involve a meaning change or illustrate an inability to recognize a word).
____ e. I am unable to tell.

50. During an oral reading test the child was asked to read the following text:

She sat quietly in the automobile.

The child read:

"He sat sat quietly in the car."

____ a. This is counted as 3 errors (1 error for each misreading).
____ b. This is counted as 2 errors (repetitions are not considered errors).
____ c. This is counted as 2 errors (car is not an error as it causes no meaning change in the sentence).
_✓_ d. This is counted as 1 error (the substitution of "He" is the only real error).
____ e. I am unable to tell.

Instructions. A 3rd-grade word recognition list was administered to each of the children listed below. The percent of word recognition each child received can be seen to the right of each child's name. Based on each child's score, decide whether (a) you would begin testing at the 3rd-grade level to determine the child's instructional reading level or (b) if you would begin testing at a higher or (c) a lower grade level. Place a check (✓) in the appropriate column.

% of word list recognition	Begin at 3rd-grade level	Begin testing at higher grade level	Begin testing at lower grade level
51. a. Patty 95%	a.	a. ✓	a.
52. b. J. P. 80%	b. ✓	b.	b.
53. c. Donna 65%	c.	c.	c. ✓
54. d. Debbie 78%	d. ✓	d.	d.
55. e. Kelly 90%	e.	e. ✓	e.

Instructions: Utilize the child's IRI scores to decide (a) whether the 2nd grade is the child's instructional reading level or if the grades do not indicate that the 2nd grade is the child's instructional reading level, would the instructional level be (b) higher or (c) lower? Place a check (✓) in the appropriate column.

	IRI Scores 2nd-Grade Level		Instructional Reading Level		
	Word Recognition	Comprehension	2nd grade	higher level	lower level
56. a. Sharon	94	74	a. ✓	a.	a.
57. b. Gene	90	70	b.	b.	b. ✓
58. c. Ronnie	95	75	c. ✓	c.	c.
59. d. Tiffany	98	90	d.	d. ✓	d.
60. e. Pasha	80	70	e.	e.	e. ✓

APPENDIX E

Repeated Measure ANOVA Tables
(pp. 316-320)

Table 1

Repeated Measures ANOVA for Total

IRI Achievement Test

Source	SS	df	MS
Within Subjects	12837.00	61	
A (Groups)	7035.13	1	7035.13
S (A)	5801.87	60	96.70
Between Subjects	14496.00	62	
B (Periods)	6561.32	1	6561.32
AB	6503.26	1	6503.26
SB (A)	1431.42	60	23.86
Total	27333.00	123	

Table 2

Repeated Measures ANOVA for Subscale One of the IRI Achievement Test

Source	SS	df	MS
Within Subjects	661.50	61	350.83
A (Groups)	345.56	1	345.56
S (A)	315.94	60	5.27
Between Subjects	603.50	62	452.95
B (Periods)	241.36	1	241.36
AB	209.04	1	209.04
SB (A)	153.10	60	2.55
Total	1265.00	123	

Table 3

Repeated Measures ANOVA for Subscale Two

of the IRI Achievement Test

Source	*SS*	*df*	*MS*
Within Subjects	2711.84	61	585.40
A (Groups)	549.36	1	549.36
S (A)	2162.48	60	36.04
Between Subjects	1612.50	62	956.49
B (Periods)	445.36	1	445.36
AB	500.01	1	500.01
SB (A)	667.13	60	11.12
Total	4324.34	123	

Table 4

Repeated Measures ANOVA for Subscale Three of the IRI Achievement Test

Source	*ss*	*df*	*MS*
Within Subjects	818.68	61	451.58
A (Groups)	445.36	1	445.36
S (A)	373.32	60	6.22
Between Subjects	952.50	62	856.16
B (Periods)	460.65	1	460.65
AB	393.88	1	393.88
SB (A)	97.97	60	1.63
Total	1771.18	123	

Table 5

Repeated Measures ANOVA for Subscale Four of the IRI Achievement Test

Source	ss	df	MS
Within Subjects	1851.30	61	454.00
A (Groups)	430.33	1	430.33
S (A)	1420.97	60	23.68
Between Subjects	1659.50	62	1108.65
B (Periods)	524.40	1	524.40
AB	574.91	1	574.91
SB (A)	560.19	60	9.34
Total	3510.80	123	

APPENDIX F

Evaluation Questionnaire
(pp. 322-325)

Name (Optional)________________
Date________________________
Class_______________________

Evaluation Questionnaire
Informal Assessment of the Reading Level of Mildly Handicapped Children

Objectives.

1. Is the material accompanied by a list of objectives?

( ) yes ( ) no

2. The objectives are stated in:

1	2	3	4	5	6	7
ambiguous global terms						specific, behaviorally stated

3. These objectives

1	2	3	4	5	6	7
coincide with realities of teaching exceptional children						are totally irrelevant to teaching exceptional children

Test.

4. How validly does the test measure the stated objectives of the module?

1	2	3	4	5	6	7
very valid						invalid

5. Were the answers to test questions predictable due to test-taking experience, cues from various test items, and/or logical guesses rather than actual knowledge of the material tested?

1	2	3	4	5	6	7
highly predictable						unpredictable

Subject Matter Content.

6. The treatment of the content is:

1	2	3	4	5	6	7
theoretically sound						theoretically unsound

7. Sequencing of the content:

1	2	3	4	5	6	7
logical						illogical

8. Usage of terms and conventions:

1	2	3	4	5	6	7
current						out of date

9. Instructional objectives are covered by the content:

1	2	3	4	5	6	7
adequately						inadequately

10. Amount of practice and review:

1	2	3	4	5	6	7
too much			appropriate			too little

11. Examples used in the material:

1	2	3	4	5	6	7
authentic						artificial

12. Amount of coding practice on audiotapes:

1	2	3	4	5	6	7
too much			adequate			too little

13. Audio quality of the tape:

1	2	3	4	5	6	7
excellent			adequate			very poor

Relevance to Teachers.

14. Practical value of the skill taught by the module:

1	2	3	4	5	6	7
extremely useful						useless

15. Appropriateness of the skill for use with exceptional children:

1	2	3	4	5	6	7
extremely appropriate						inappropriate

Recommended Procedures for Using the Module.

16. The format:

1	2	3	4	5	6	7
too unstructured			optimal			too structured

17. Can be used by:

1	2	3	4	5	6	7
any teacher trainee						special training very necessary for use of materials

18. Availability of special equipment:

1	2	3	4	5	6	7
readily available						difficult to obtain

Attitudes Toward the Module.

19. I could more adequately acquire the same type of teaching skill from a conventional lecture type class:

1	2	3	4	5	6	7
strongly agree						strongly disagree

20. I would like the opportunity to acquire another teaching skill in a similar manner:

1	2	3	4	5	6	7
strongly agree						strongly disagree

21. More education courses should have this type of activity integrated into their formats:

1	2	3	4	5	6	7
strongly agree						strongly disagree

22. I found this a beneficial activity and feel I have learned from it.

1 strongly agree	2	3	4	5	6	7 strongly disagree

Suggestions for Modifications:

1. Additional objectives to be included:

2. Trivial and superfluous objectives to be deleted:

3. Suggestions for improving the face validity of the material:

4. Conceptual shortcomings and errors to be corrected:

5. Minor technical errors:

6. Examples to be added:

7. Examples to be deleted:

8. General suggestions for the improvement of the materials: